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## ORIGINAL COMMUNICATIONS.

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### THE PHYSIOLOGY OF VOICE PRODUCTION.\*

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In giving my views on this subject, I will pass over that portion of the physiology of the voice which is described in the textbooks and which is familiar to all, but will limit myself to those points which are little, or not at all, referred to in these works, and which, moreover, have been the subject of animated and not always satisfactory discussions.

I have frequently been asked by singers, teachers and others, in what manner the voice in ordinary speech differs from the voice in song. Many persons have the most erroneous views on this subject, some believing that there is some special adaptation of the vocal organs in singing, and others going so far as to believe that certain parts of the voice organs are used for speech and others for singing.

In order to understand this matter more fully, let us consider in what respect physically song differs from speech. Perhaps the most conspicuous difference is in the greater range of the pitch in singing from that used in speaking. The average singer uses from one and a half to two octaves in his vocal efforts and many of the well-known artists have several tones above this range. In speaking, on the other hand, the same tone is also not adhered to, as this would give a monotonous character to the voice, and, while this difference is frequently not more than three semitones, it is easily observed, on

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close attention, not only in oratorical efforts, but also in ordinary conversation. This difference varies according to the individual speaker and even with the nationality. In New Orleans where the vivacious French element is conspicuous in the social circles, I have frequently observed a difference in tone of a full octave in ordinary conversation. We see, therefore, that the difference of range in singing and in speech is one only of degree.

The next most noticeable feature in singing is the measure which is present in the majority, although not in all, vocal productions. Not only has the singer a certain amount of license in the use of this measure, but we have the rhythmical periods in poetry, so that again the difference is one of degree and not of kind. Another conspicuous point in singing is the sustaining of the vowel sounds, this varying according to the expression, *motif* and other circumstances; but this prolongation of the vowel also exists in ordinary speech as one can easily observe, especially in an expressive speaker.

From these illustrations we see, therefore, that the most conspicuous points of apparent difference in voice production in song and speech are closely related; that the difference, in fact, is one of degree and not of kind.

Before discussing the important question of technique in voice production, let us consider for a moment the classes into which singers are commonly divided: the soprano, mezzo-soprano, contralto, tenor, baritone and bass. It is generally believed that the difference in these classes depends entirely upon their range of tone, this being so common an error that many of the professors of music class the voice according to this distinction alone; in fact this method of classifying the voice was in vogue until recently even in some of our best-known conservatories. That this is erroneous is indicated by the fact that it is not unusual to have a bass with the range of the baritone, and a mezzo who can sing all the soprano parts. Madame Fierens, who was a conspicuous artist in the last season of the French Opera at New Orleans, although belonging to the class of the mezzo-soprano, sang all the soprano parts with facility, and Bouxman, the bass, of equal reputation, easily sang the G of the baritone. A tenor of international reputation sang no higher than G and yet deservedly won an enviable reputation for himself with this limited range.

The distinction between these classes is one to which the English, for want of a better name, have applied a term borrowed from optics, *color*, the French using a much more expressive term, *timbre*. The word *quality*, which is sometimes used, is inappropriate because

it is more frequently applied to the good or bad qualities of the singer's voice. The timbre refers to that difference which we observe between the flute and the flageolet, or between any two other instruments in which the sound may be of exactly the same tone and intensity, but between which we nevertheless note a difference due to the character of the sound wave, and not their rate or strength.

The importance of this distinction in the classification of the voice is not one of simple theoretical value. Its recognition will prevent, for instance, the mistake frequently made by the teacher who informs his pupil that she has a mezzo voice, but that he will give her a soprano; that another has a bass and he will teach him to become a baritone, such attempts not only being unsuccessful but frequently inflicting permanent injury on the voice.

The peculiarities of the various languages in voice production is a most inviting subject which presents many features for discussion, but which I shall be compelled to omit, owing to the limitations of time.

In regard to the technique of voice production, the method of respiration plays a most important part. It has been the subject of long arguments in favor of one method or another, and, while there is more unanimity on this subject than has been the case in former years, still the matter is not yet settled to the satisfaction of all concerned.

The three important methods of breathing which have been described are the clavicular, the lateral or costal, and the diaphragmatic or abdominal. It is, of course, understood that the respiration is not entirely limited to one of these three classes, but the distinctions are useful as indicating the method which is the most conspicuous and to which is attached the most importance in the respiratory efforts.

The clavicular method of breathing was at one time very popular among a certain class of French singers and in some parts of Germany, but did not receive much favor in England or America. In this method the upper part of the chest, the clavicular region, made the most conspicuous respiratory efforts. It is objectionable not only from a physical standpoint, but also for artistic reasons, as the artificial raising of the chest and shoulders is extremely disagreeable to one who desires the æsthetic in music as well as in other arts. It is disadvantageous from a scientific and common-sense standpoint, as it produces the least result with the greatest effort, and is fortunately but little in vogue to-day. It is by no means obsolete, however.

The lateral or costal method of breathing has much more in its favor and is still practiced extensively. Comparing it with the diaphragmatic method of breathing, it has been found, on careful examination, that the lung capacity is not as great in this as in the diaphragmatic breathing. It can be shown that when the lungs have been fully inflated by means of the lateral method, a considerable percentage may be added to the air volume by using the diaphragmatic form of breathing. This is an important consideration, as the artistic singer uses his voice as the violinist his bow, and the longer and more sweeping these efforts are, the less the muscular strain and the better the effect. Another objection to this method of breathing, which applies more directly to the singer than to the speaker, is one that affects the timbre of the voice. You will easily understand that if the singer gives a certain note with the chest wall fully dilated and continuing his phrase until the volume of air has almost been expended, again sings the same note, that there will be a dissimilarity due to the difference of resonance between the fully distended chest walls and the same contracted, this effecting the homologous character of the voice, which is of elementary importance in artistic singing.

The abdominal and diaphragmatic method of breathing are here used synonymously, because both sets of muscles are brought into use at the same time, thus bringing into play a greater strength in the voice production. The chest walls, although not entirely fixed, are but little moved and in an elastic condition, the diaphragm giving a continued pressure of air to which the abdominal muscles add steadiness and power. The advantage of this method has been so well recognized that it is now almost universally used by the professional singer.

While speaking on the subject of respiration, it may not be inadvertent to refer to the recognized method of testing the chest capacity as practiced by the insurance examiner. A tape is passed around the chest wall and the candidate for insurance is directed to inflate the lungs, the supposed capacity depending upon the number of inches registered by the tape. I have frequently seen a fictitiously large capacity shown by this method in lungs that were comparatively defective, and, on the contrary, a very low capacity in lungs which can really inhale an unusually large quantity of air, but in which the breathing was of the abdominal style. In my own case, for instance, the number of inches shown by the tape would be extremely small, while the actual lung capacity is considerably above the average, this being due to the fact that the diaphragmatic method of breathing is almost entirely used.

While the text-books on the physiology of the voice give full detail as to the position and movements of the vocal cords, the epiglottis, etc., in voice production, the question of the "placing of the voice," as it is called, or, more properly, the adjustment of the larynx in vocal production, is rarely referred to although it is a subject of paramount importance, especially to the singer. If we take a tuning fork and set it in vibration by striking it against some substance, the sound is heard but very indistinctly, whereas, if we apply it after it has been set in vibration to a piece of wood or other resilient substance, the sound is so distinct that it may be heard by every one in the room. In what way do these experiments differ one from another? I made use of the same original impulse to set the tuning fork in vibration in both instances and added no new energy in applying it to the wood, and yet the results are so dissimilar. The reason is simply that the vibrations of the tuning fork have been re-enforced by the vibrations set up in the substance to which it was applied, and these, together with the original vibrations of the tuning fork, have given rise to the sound which is heard so distinctly. A great difference exists in this re-enforcement according to the acoustic resiliency of the substance to which the tuning fork is applied, but the analysis of this subject would lead me too far from the original object of this communication, so I will dismiss it with the simple mention of the fact.

The vocal cords of the larynx represent the tongues of the tuning fork and unless the sound is re-enforced, either by some substance vibrating in unison with them, or by aid of some resonant cavity, they are but very indistinctly audible. Naturally, the extreme condition in which there is no re-enforcement does not exist in the larynx, but there is a wide distinction between this point and the full resonance exhibited in the cultivated voice of the good singer.

In the majority of singers, whose voices have not been trained, the larynx is used in the elevated position, so that the best effects of this re-enforcement are not obtained. The voice has a softer quality, but usually lacks strength and resonance, although in some cases there is a gain of a few upper tones; many of the baritones who sing the tenor scores use the voice in this position. It is defective, however, usually of a throaty character, and is easily detected by one familiar with the correct technique of singing. Exceptional cases have been known, especially in England and Italy, in which the so-called natural singers have used the voice, and with success, in this position, but the result is gained even in

these cases by an uncalled-for exertion on the part of the singer who does not gain the full benefit of the energy applied.

As shown by the tuning fork, a slight impact, with the assistance of resonance, gives forth a more distinct sound than one in which a much greater impact is used without this. In the properly adjusted larynx, in which the full benefit of re-enforcement is obtained, a comparatively slight effort gives a far better result than a much greater effort without this. Not only is it a question of conservation of energy, but when the voice is improperly placed, the undue strain results in irritation and afterwards in inflammation, so that, unless the faulty method is corrected, the voice may be seriously affected and even permanently injured.

What I have already stated refers more especially to the singing voice from which successful results can be obtained only when the parts are in good condition and properly used, but it applies, although to a more limited extent, to the voice in speech. In this, the proper placing of the voice is of no little importance, especially in the case of teachers, lawyers and professional speakers, who, like the singers, make great demand on the vocal organs. In fact it has been claimed, and not without reason, that continued speaking is more trying to the voice than the same amount of singing, owing to the fact that instead of applying the varied range of which the singer makes use, a much smaller compass is used and the same parts and muscles are brought more frequently into play.

The incorrect placing of the speaking voice usually takes place about the time of puberty when the voice changes almost an octave in the youth, but much less in the girl, so that this fault is more frequently observed in the male. When this change of voice is about to take place, the lad is like an unanchored ship, not knowing where to locate his voice. He usually ends by placing his voice in about the same tone, as far as his larynx will permit, as his father or other adult with whom he is much associated. In this way we frequently observe the resemblance of voices in the same family. If, however, the adult has his voice badly placed, the probability is that the child will do likewise. The father may be engaged in an occupation where the voice, especially for loud speaking, is not much used, so that he has but little irritation from its faulty use. The child, however, may eventually become a clergyman or a lawyer and he then feels the effect of what is usually called a weak voice, although he may really possess naturally a strong voice, but badly adjusted.

The speaking voice should be placed as low as the voice will permit, so that it can be used without undue strain of the muscles of the vocal cords and accessory muscles, at the same time not being so low as to prevent changes in the inflections of the voice in giving expression to speech. Very frequently it is placed several tones above this, so that the constant strain from speaking places the subject in the same position as one who has ametropic vision and who feels the constant strain unless assistance is given by glasses. Fortunately, in this case, the correction is a more natural one and the error being recognized and the subject placed under the care of one who understands the correct principles of elocution and the proper placing of the voice, the fault may be entirely corrected. Many cases of the so-called "clergyman's sore throat," chronic laryngitis and other irritation of the throat are due to this, and unless the cause is removed, recurrences will naturally be frequent until eventually the voice may be permanently injured.

The considerations which have been here pointed out are important alike to the physician who treats the vocal organs, and the clergyman, lawyer or other vocalist who makes use of them. Modern therapeutics have become more scientific in recent years and one of its maxims is that in the treatment the cause, if possible, or where recognizable, should be removed. The neglect or inability to correct the irregularities which I have here pointed out has been the cause of many affections of the throat and explains many cases of failures in the field of art. I have seen no small number of artists, clergymen and others, in which the effect of the faulty use of the voice has developed conditions in the throat so pronounced that a complete cure was no longer a possibility, all of which might have been avoided had the first physician who saw the case recognized the faulty placing of the voice as an etiological factor in such cases.

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## AURICULAR CATAPHORESIS.

BY PROF. GHERRARDO FERRERI, ROME, ITALY.

The inefficacy is but too well known, of all the means that special therapy has heretofore brought forward, to overcome or moderate tinnitus sounds, and it is as well known how very intense and persistent such noises are at times, so much so as to make life almost intolerable.

Among the most recent that I know of, galvanic cataphoresis failed, and for that reason I instituted in the clinic with which I am associated a series of experiments distinct from the attempts that have hitherto been made. Knowing well that skepticism accompanied those attempts, especially because there were some to suggest in every case that the little beneficial effect was due perhaps more to the electric action than to the drug naturally, I have resolved that this doubt should not be an obstacle in my experiments.

In otology cataphoresis was attempted solely to obtain the anesthesia of the auditory meatus and of the tympanic membrane for minor bloody operations of these regions (opening of furuncles, cure for dermatosis, paracentesis, etc.), and those who sustained it, as Masini and others, affirmed that its anesthetic action was more rapid, more pronounced and more persistent.

Masini also tried cataphoresis in otalgia, observing that a solution of 5 to 10 per cent of cocaine with a very weak current applied for five minutes was sufficient to stop it. He also obtained anesthetic effect with morphine, but in a lesser degree.

*Apropos* of cataphoresis, Scheppegegrell says that this method, so seldom used in auricular diseases, offers without doubt a big field for new studies regarding the possibility of cure for some chronic morbid states of the ear that have resisted ordinary methods. In fact, Cogney, of London, wanted to try cataphoresis in deafness of labyrinth origin, using iodine and potassium iodide.

From otologic literature one learns that some acknowledge the passage, through the tissues, of a remedy under the action of the continued current, while others deny it. However, those who have recorded favorable experiments have been so inexplicit in the matter of detail that one finds it difficult to repeat the attempts in analogous conditions. In the records that I have read, either I have not found the given reports, or I have found them incomplete, with regard:

First, to the intensity of the current; second, to the duration of the experiment; third, to the application of the poles. Besides, the doubt remains as to whether the relative degree of anesthesia obtained should be ascribed to the action of the current or to that of the medicament. This doubt is so much more legitimate since the innervation of the mucous membrane as well as the capacity of absorption has need yet of more demonstrative study. I myself have often doubted the anesthetic action on the membrane of cocaine introduced through the auditory meatus, having always seen the patients jump at the slightest touch of the myringotome.

After noting the uncertainties and doubt associated with cataphoresis, I took up the study again, and here faithfully report the results obtained.

I used the battery of chloride of silver of Dr. Pincus, of Königsberg, the principal value of which is constancy, and the very energetic chemical effect. The battery is constructed of ten elements and develops a current of 5 *milliamperes*.

The change of direction of the course of the electricity is obtained by means of a commutator. The medicaments are introduced, first, in the shape of ordinary little ophthalmic disks, applied by means of a sound, directly to the tympanic membrane.

One after the other the same medicaments were introduced in aqueous solution of sufficient quantity to fill up the auditory meatus.

With the purpose of being able to obtain positive evidence of the absorption, such substances were used that manifested, with pupillar reaction, their presence in circuit, namely:

## MYOTICS.

Sulphate of eserine.....	gr. 0.02
Boiled water .....	gr. 10.00
Hydrochlorate of pilocarpine.....	gr. 0.10
Boiled water .....	gr. 10.00

As excipient, instead of water, non-acidified oil could be used; in which, however, base alkaloid, and not salt alkaloid, must be dissolved.

## MYDRIATICS.

Sulphate of hyoscyamine.....	gr. 0.01
Boiled water.....	gr. 10.00
Hydrochlorate of scopolamine.....	gr. 0.01
Boiled water.....	gr. 12.00
Sulphate of atropine.....	gr. 0.03
Boiled water.....	gr. 10.00
Sulphate of duboisine.....	gr. 0.04
Boiled water.....	gr. 10.00
Hydrobromate of amatropine.....	gr. 0.05
Boiled water.....	gr. 10.00
Hydrochlorate of ephedrine.....	gr. 0.50
Boiled water.....	gr. 10.00
Hydrochlorate of cocaine.....	gr. 0.20
Boiled water.....	gr. 10.00

Here, too, non-acidified oil, in which base alkaloid is dissolved, could be used as excipient.

At first the negative pole, covered with felt, was introduced into the meatus, applying the positive to the corresponding mastoid process; the duration of the current was one hour. On the other hand, in a second series of experiments, the poles were changed and the results were closely observed, since the action of the current upon a salt determines the precipitation of the alkaloid upon the positive pole and the development of the acid upon the negative pole.

The results obtained were negative; no reaction; neither the mydriatics nor the myotics entered in circuit. Because of the doubt that the current could have sensibly changed the physiological property of the medicaments, the control *in vitro* was made, making the same current act for an hour on the solutions, which were then instilled into the ear. They accordingly gave the reaction.

Following these results I thought it better to circumscribe the action of the current, and I tried to force the negative pole, constructed from a mandrin of steel, isolated through a fine catheter, into the tube, not varying the system already adopted for application of the medicines, but the effects were not different from those already obtained; on the contrary, it was found inconvenient, as the patients after five minutes could not tolerate the current any longer and were

seized with violent otalgia. Lastly, on account of the doubt that the obstacle to the penetration of the drugs might be the epidermic covering of the mucous membrane, I had recourse to individuals in whom the membrane had been destroyed, completely or in part, without, however, trace of suppuration during the process. And in these different conditions of the subjects, I repeated the experiments without the introduction of the catheter into the tube. Yet, in this manner, I could not observe either mydriatic or myotic reaction.

In conclusion, the various experiments referred to have not demonstrated that, under the action of an electric current, the medicaments applied (either in solution or in gelatine disks) to the tympanic membrane and to the mucous membrane of the cavity are absorbed. The results demonstrate that auricular therapy cannot count galvanic cataphoresis among its efficacious resources. My experiments, entirely negative because of the lively action of the current, give cause for less faith in those preparations heretofore considered efficacious, because of a special action in the treatment of the cavity through the tube; however, granted that the current exerts no action, I cannot explain how the effect of some medicaments, introduced into the middle ear, failed, and yet remained a long time in contact with the mucous membrane.

Therefore the experiments of cataphoretic action have made me doubt the efficacy of some intra-tympanic injections. At first it may seem of little importance; on the contrary, it has a signification that merits consideration, as there appears also a suspicion that in certain given lesions absorption may not occur because of altered structure of the mucous membrane, which has lost the property of absorption.

Certainly my experiments do not justify absolute conclusions, but from them can be deduced the necessity of better controlling a good part of intra-tympanic therapy and of studying more profoundly that which concerns the modifications encountered in the tissues of the ear in certain lesions.

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## THE PHYSIOLOGIC TESTS AS AIDS TO THE DIFFERENTIAL DIAGNOSIS OF LESIONS OF THE EAR WHICH PRODUCE DEAFNESS AND TINNITUS.\*

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If we begin with the most external portion of the ear, and proceed inward to the labyrinth, taking the anatomical parts in series from the auricle to the external meatus, from the external meatus to the drumhead, from the drumhead to the mucous membrane lining the tympanic cavity and Eustachian tube, from the mucous membrane to the ossicular chain, from the ossicles to the fenestra ovalis and fenestra rotunda, and from the windows to the labyrinth, we will have a classification of the lesions of the ear which produce deafness and tinnitus that is easy to remember and that is logical from an anatomic, physiologic, pathologic and clinical standpoint. The amount of deafness and tinnitus is usually in proportion to the nearness of the lesion to the labyrinth. Thus, affections of the auricle produce but slight disturbances of the ear, cerumen and furuncles in the external meatus but little more, perforations or other lesions of the drumhead some more, catarrhal inflammation in the mucosa of the tube and tympanum still more, while ankylosis of the ossicles and foot-plate of the stapes produce marked disturbances of hearing. Finally, profound deafness and tinnitus result from hemorrhage into the labyrinth. In this brief discussion we will follow the above classification because of its simplicity and logical arrangement.

*Lesions of the Auricle.*—Swelling of the auricle, especially of the concha, as a result of frost bite or other irritation, is attended by slight deafness. The removal of the ear by traumatism or as a result of disease does not affect the hearing to any marked degree. The diagnosis of deafness from these conditions need not be discussed in this paper, as the lesion is so apparent.

*Lesions or Obstruction to the External Meatus.*—The presence of dermatitis, eczema, furuncles, etc., may readily be diagnosed by ocular inspection, the slight deafness present, the positive Weber sign in the affected ear and the absence of the usual signs of middle ear and labyrinthine disease.

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*Lesions of the Drumhead.*—It has been proven experimentally that if a small ball of wax is attached to the drumhead the vibrations of the ossicular chain are less interfered with than they are when the ball of wax is attached to one of the ossicles. Clinically we know that perforation, cicatrices and calcarious deposits are attended by much less disturbance of hearing than ankylosis and adhesions of the ossicles. It has also been demonstrated that when the ball of wax is attached to either the drumhead or the ossicles there is a greater interference with the vibrations in low tones than in high ones. This corresponds with clinical observations also, as it is well known that in lesions of the conduction apparatus the power to hear tones of the lower register is impaired or entirely lost.

*Lesions of the Mucosa.*—The diagnosis of diseased states of the tympanic and tubal mucous membrane depends somewhat upon the appearance of the drumhead and the degree and character of the permeability of the Eustachian tube. The most interesting question which presents itself to the surgeon is whether the disease process is limited to the mucosa or involves the deeper structures, as the articulation of the ossicles, the insertion of the foot plate of the stapes, or whether the inflammatory process has gone on to the production of adhesive bands which bind the ossicles to one another or to the tympanic wall and drumhead. In simple catarrhal inflammation the deafness and tinnitus are comparatively slight and transitional in character, while in ankylosis and sclerosis they are quite pronounced. Paracusis Willisiana is a very certain sign of ankylosis or sclerosis of the mucosa. Further discussion of this part of the subject will be deferred until we take up the consideration of adhesions and ankylosis.

*Lesions of the Tympanic Muscles.*—Weakness of the tensor tympani and stapedius muscles may result from inflammatory degeneration or from interference with their action by sclerotic adhesions. Their innervation may be deficient on account of a general systemic dyscrasia or from a local lesion of the nervous supply. As they regulate the tension of the drumhead and the intra-labyrinthine fluid their tonicity is essential to good hearing. They have also been described as presiding over the "focusing" power of the ear; that is, by their aid the ear is enabled to select from a multitude of voices the voice which the hearer desires to hear.

The focusing power may be tested by having the patient stop one ear and then approach him with a watch until he hears it tick-

ing. After this distance is determined by successive approaches, he should be tested by receding with the watch and noting if he is able to hear it at a greater distance than when approached. A normal ear will hear it several inches further from the ear after the ticking is once perceived. If the muscles are weakened from any cause the tick will not be heard at a greater distance as the watch is withdrawn from the ear. The selective power may also be determined by having two or more instruments playing in the room at the same time. If the muscles are unimpaired the instruments may be heard in turn at the will of the hearer. If, however, they are impaired, only a confusion of noises will be heard.

*Lesions Affecting the Mobility of the Ossicles.*—This division of the subject carries us into the midst of one of the most interesting and difficult fields of differential diagnosis coming within the scope of the otologist. It is here that the physiologic tests of hearing are of the most value, and which at the same time are the despair of many who attempt to use them. Some authorities condemn them as having but slight or doubtful value, while others regard them of such value that they recommend their use in every case of deafness. It has been my custom for several years to systematically test every case of deafness and tinnitus, both in private and clinical practice. My convictions are based upon this experience and will be briefly and incompletely expressed in this paper, especially in the consideration of lesions affecting the mobility of the ossicles. A differentiation is of value, not so much on account of the treatment as of the prognosis. Patients present themselves with marked diminution of hearing and harassing subjective noises, and it becomes the sacred duty of the aurist to give them a correct opinion as to the probability of cure or improvement they may expect from a course of treatment. It is not enough for the aurist to tell them that such cases are sometimes benefited by treatment while others are not, and that only a course of treatment covering several weeks or months will determine the curability of those seeking advice. Such an opinion is not worth the consultation fee usually asked, and is certainly beneath the standard which may be attained by all conscientious and intelligent aural surgeons.

Preliminary to the consideration of this subject we will state some of the principles which underlie the physiologic tests of the organ of hearing:

*First Principle.*—In the normal ear the tuning fork is heard by air conduction about twice as long as by bone conduction. Bone conduction is very much diminished after the fifty-fifth year of age.

Second Principle.—In lesions of the conduction apparatus the duration and intensity of hearing by bone conduction are increased.

Third Principle.—In lesions of the perception apparatus the duration and intensity of hearing by bone conduction are diminished or entirely lost.

Fourth Principle.—In lesions of the conduction apparatus hearing for low tones (infrequent vibrations) is diminished or lost.

Fifth Principle.—In lesions of the perception apparatus hearing for high tones (frequent vibrations) is lost.

It having been determined experimentally that foreign bodies attached to the drumhead and ossicles interfere with the vibrations for tones of the lower register we can readily understand why ankylosis or adhesive bands interfere with the hearing for low tones, while the hearing for high tones is not affected. It is not so easy, however, to understand why bone conduction is increased. Various ingenious theories have been advanced in explanation of this phenomenon, but none of them seem adequate; nor is it more easy to explain the loss of bone conduction in labyrinthine disease.

To facilitate the discussion, we will take the physiologic records of a few cases and attempt to arrive at a differential diagnosis.

*Case I.* Range of hearing: R—256<sup>v</sup>—40,000<sup>v</sup> Weber + R.  
L—16<sup>v</sup>—40,000<sup>v</sup>

Rinné: R—5" Sch. R bone 25", air 0".  
L+15" Sch. L bone 15", air 30".

The right ear shows a loss of hearing for tones lower than 256 vibrations per second and an increase in bone conduction, both of which signs point to disease of the conduction apparatus. The left ear gives the normal physiologic tests. This case illustrates a simple catarrhal otitis media with deafness and tinnitus as the chief subjective symptoms.

*Case II.*—Deafness and tinnitus in the left ear.

Range of hearing: R 16<sup>v</sup>—40,000<sup>v</sup> Weber + R.  
L 16<sup>v</sup>—40,000<sup>v</sup>

Rinné: R+5"  
L+No bone conduction.

This case illustrates what may be called "Apparent" labyrinthine disease, or what is more popularly known as nerve deafness. The patient is quite deaf in the left ear and bone conduction is entirely lost on that side, and the Weber test shows plus bone conduction for the right. Thus far all signs point to laby-

rinthine disease. The range of hearing by air conduction, however, shows high tones are heard in the affected left ear. This contra-indicates nerve deafness, as high tones should be lost. Shall we despair of arriving at a diagnosis because of this apparent contradiction, or shall we go further with the investigation and see if there is not a way out of the difficulty? My record shows the following interesting experiment: "After inflation of the tympanic cavities by catheterization, Rinné R+10, L+10." In other words, bone conduction is restored to the left ear and hearing has returned to near the normal. What inference should be drawn from the physiologic experiments made on this case? Simply this: there was extreme retraction of the drumhead, which forced the foot plate of the stapes against the labyrinthine fluid, thereby greatly increasing its tension. This irritation resulted in so modifying the physiologic response to the stimulation of the vibrating fork placed against the mastoid that bone conduction was lost. Inflation relieved the intra-tympanic pressure and bone conduction was instantly restored. This case was referred to me as one of Menière's disease, although there was no history of sudden and total loss of hearing. Nausea, vomiting and a staggering gait were present during the times when deafness was most pronounced. These symptoms were also relieved by the inflation.

*Case III.*—Progressive deafness in both ears. Greater deafness in the right.

Range of hearing: R 512<sup>v</sup> to 10,000<sup>v</sup> Weber + L.  
L 128<sup>v</sup> to 40,000<sup>v</sup>

Rinné: R+15" Sch. R bone 3", air 18".  
L+ 5" L bone 20", air 25".

In this case there is a loss of both high and low tones in the right ear. Weber's experiment shows bone conduction best in the left or better ear, while it is almost nothing in the right. In this case there is nearly uniform evidence of involvement of the labyrinth of the right ear. The only contradiction is the loss of hearing for low tones. This may be explained by the fact that there is disease of the middle ear as well as of the labyrinth. The labyrinthine disease predominates, however. Inflation of the tympanum is not followed by relief of the deafness. The history of the case shows a long-continued catarrhal process in the right ear which has passed on into the sclerotic type. Adhesive bands have formed and the ossicles are firmly bound by them to the tympanic wall and to each other. I have no doubt the bony tissues of the con-

tiguous parts have undergone the same changes and thus involved the labyrinth. It is in sclerosis of the middle ear that we are most apt to find more or less severe impairment of the labyrinthine functions.

*Case IV.*—Marked deafness and tinnitus in the left ear. Eighteen years ago this patient had acute suppurative otitis media. There were occasional discharges for five or six years. There has been no discharge within the last twelve years.

Range of hearing: R 16"—40,000" Weber + L.  
L 256"—20,000"

Rinné: R + 15" Sch. R air 32", bone 18".  
L — 8" L air 20", bone 28".

Inflation does not relieve either the deafness or tinnitus. This case shows deafness with bone conduction increased in the affected ear and a minus Rinné and loss of low tones in the same ear, all of which point to disease of the conduction apparatus, rather than of the labyrinth. The question for consideration in this case is, what part of the conduction apparatus is at fault? We may readily exclude the auricle and external meatus, as the deafness is too profound to have its origin there. Lesion of the drumhead may likewise be excluded for the same reason. It must be located in either the mucosa of the tympanic cavity or Eustachian tube, the ossicles or the windows of the labyrinth. If it is limited to the mucosa, inflation will improve the results shown in the Rinné experiment and overcome the deafness to a marked degree. This does not occur, hence we must consider the ossicles and labyrinthine windows as the probable seat of the lesion. When the air is exhausted in the external meatus with a Siegle's otoscope, the handle of the malleus remains fixed in its retracted and rotated position, while portions of the drumhead bulge outward. Fibrous bands may be seen crossing the inner surface of the drumhead. Bing's experiment shows hearing better through the Eustachian catheter than through the external auditory meatus, hence the oval window is not affected. The lesion must then be located in the ossicular chain. Had the hearing been better through the external auditory meatus than through the catheter, we should have concluded that the lesion was in the oval window.

*Case V.*—Patient, age seventy years. Hearing almost normal. Bone conduction almost lost. A student referred this case to me as one of nerve deafness. He based his diagnosis upon the greatly

diminished bone conduction, quite unmindful of the fact that the gentleman was not deaf at all. The diminished bone conduction is due to age of the patient and not to intrinsic ear disease.

*Lesions Affecting the Labyrinth.*—I have already referred to slight lesions of the labyrinth from the extension of pathologic processes from the middle ear. There remains one general group of labyrinthine lesions to which I wish to direct your attention, namely, lesions attended by complete and sudden deafness, vertigo, nausea and vomiting. This group of symptoms is known as Menière's disease. I refer to it for the purpose of illustrating the significance of total loss of bone conduction.

*Case VI.*—This patient came under my care about two months ago complaining of sudden deafness in the left ear. The right was similarly affected two years ago. Two months ago he became suddenly deaf and was affected by nausea and vomiting for twenty-four hours. The staggering gait, at first pronounced, has almost disappeared. He is still bothered with it somewhat in walking when he attempts to look to either side. So long as he fixes his eyes in front his gait is unaffected. Bone conduction is entirely lost in both ears. Can hear very loud conversation close to the ear affected two years ago. Can only hear loud noises in the left ear. When tuning fork giving 256 vibrations is caused to forcibly vibrate, he hears it faintly with his left ear. High tones are entirely lost. This is undoubtedly a genuine case of Menière's disease and affords a fine illustration of the total loss of bone conduction.

I have purposely avoided extensive reference to the general symptomatology of the foregoing cases, in order that we might limit our discussion to the value of the physiologic tests or experiments, as aids in the differential diagnosis of lesions of the ear which cause deafness and tinnitus.

I do not claim that the physiologic tests are infallible aids in the differential diagnosis of lesions of the ear, but that they are of very great value when intelligently used for this purpose. I do claim that without their aid many cases cannot be properly diagnosed. While these tests are perhaps not of equal value with ophthalmoscopic examinations of the fundus of the eye, they are the best at the command of the otologist and should be used in conjunction with all other methods of differential diagnosis.

100 State street.

## NASAL POLYPI IN THE NASO-PHARYNX.

BY J. M. INGERSOLL, A.M., M.D., CLEVELAND, OHIO.

Lecturer on Oto-Laryngology in the Western Reserve University.

Large mucous polypi in the naso-pharynx, with their pedicles springing from some portion of the nasal fossæ, are comparatively rare. Such a condition could easily develop in neglected cases of nasal polypi, where the continual growth of the tumors in the nose would force one or more of the extreme posterior polypi back into the naso-pharynx, but the patients usually seek relief from the nasal obstruction and other symptoms caused by the polypi before such a condition develops, or, at least, before the tumors in the naso-pharynx become large enough to interfere with the act of swallowing or other disagreeable symptoms. The report of the three following cases is of interest, therefore, principally on account of the large size of the polypi.

*Case I.*—Mrs. W., age forty-two, consulted me, complaining of complete nasal obstruction, a profuse purulent discharge in the nose and naso-pharynx, persistent tinnitus aurium and increasing deafness. Examination showed both nasal fossæ to be filled with polypi, covered with creamy pus. The uvula and soft palate were pushed forward and downward, presenting a round, bulging appearance. The naso-pharynx was filled by a round tumor, regular in outline, movable and not adherent to the surrounding tissue; its most dependent part extended down a little below the free edge of the soft palate; its point of attachment could not be definitely determined. From its appearance and the nasal condition a diagnosis of mucous polypus was made, and this diagnosis was confirmed later by microscopical examination.

The naso-pharynx was cocaineized and a cold wire snare with bent tip was inserted through the mouth and passed well up around the tumor; the snare was then tightened until a firm grip was secured and the tumor removed by traction, so as to secure the pedicle and surrounding tissue. Considerable force was necessary to remove the tumor and the hemorrhage was quite severe for a few moments. After the hemorrhage had ceased, a posterior rhinoscopic examination was made and a part of the pedicle could still be seen, springing from the posterior end of the left middle turbinal. The stump of the pedicle was snared off through the nose afterwards, when the nasal polyp had been removed. The tumor measured 5.5 x 3 c.m.

After removing the polypus from the naso-pharynx the patient experienced marked relief; the difficulty in swallowing disappeared entirely, as did the tinnitus aurium, which had been constant and very annoying, and the hearing power increased from 4 c.m. to 50 c.m.

When the nose had been cleared of all polypi and hypertrophies, empyema of both antri, both frontal sinuses and the ethmoidal cells, was diagnosed and treated.

*Case II.*—M. W., male, age fifty-seven, presented the following symptoms: Total inability to breathe through the nose, marked difficulty in swallowing, so much so that the patient was suffering from the lack of nutrition; persistent tinnitus aurium, deafness and asthma. Both nasal fossæ were filled with polypi, one large polypus presenting in each vestibule, causing considerable bulging of the *alæ nasi* and broadening of the bridge of the nose. The uvula and soft palate were pushed forward by a large round tumor which filled the naso-pharynx and part of the oro-pharynx, extending downward so far that it was necessary to depress the tongue in order to see the lower border of the tumor. As in the first case, the tumor was movable, non-adherent, fairly firm in consistency and attached high up in the naso-pharynx.

The cold wire snare was used for its removal, and the attempt was made to remove the whole tumor by traction, but the wire cut through the tissue and a round piece 4 c.m. (1.5 inches) in diameter came away. The hemorrhage was slight, and after it had ceased an examination with the posterior rhinoscopic mirror showed the stump of the pedicle and a second similar tumor filling the upper part of the naso-pharynx. These were removed with the snare and adenoid forceps, and their pedicles, which were attached to the posterior end of the right middle turbinal, were snared off through the nose, after removing the nasal polypi. Microscopical examination in this case also showed the tumors to be typical mucous polypi. The tumor complete measured 6 c.m. in its longest axis and 4 c.m. in thickness.

The difficulty in swallowing was relieved immediately, the tinnitus aurium ceased and the patient's hearing increased considerably; the asthmatic attacks ceased. There still remained a profuse purulent discharge in the nasal fossæ, and a probable diagnosis of empyema of the accessory cavities was made, but the patient refused any treatment for this.

*Case III.*—Mrs. J., age twenty-three. This patient complained of constant obstruction and purulent discharge in the right nasal

fossa, which had existed for about two years. The hearing power of the right ear had been gradually decreasing, and the tinnitus in this ear was loud, persistent and very annoying. Examination showed the left nasal fossa to be nearly normal. The right fossa was completely occluded by polypi which were covered with purulent secretion.

In the naso-pharynx a mass could be seen which filled about two-thirds of the naso-pharyngeal space, covering the right choana and the Eustachian opening. This mass looked very much like adenoid tissue and had been so diagnosed, but the condition in the nose and the fact that the tumor was movable and was not attached to the naso-pharyngeal wall warranted the diagnosis of nasal polypus.

After removing the polypi from the right fossa, the polypus in the naso-pharynx could be plainly seen and its attachment, by a small pedicle, to the posterior part of the middle turbinal could be felt with a probe. A flexible snare loop was passed through the nose and down into the naso-pharynx, between the tumor and the soft palate, until the loop extended below the tumor, then it was worked up around the tumor and the pedicle severed close to its attachment. The polypus dropped into the pharynx and was spit out by the patient. It measured 3 x 2 c.m.

In each case sections were made through the center of the tumor, including the pedicle, and examined microscopically. The surface of the tumors was covered by columnar epithelium; the tissue consisted of a diffuse myxomatous growth. The pedicle was composed of moderately dense fibrous tissue.

50 Euclid avenue.

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## STRONG CARBOLIC ACID USED BY MISTAKE AS A THROAT SPRAY.

BY D. H. GALLOWAY, M.D., CHICAGO, ILL.

Some months ago I was treating a child with diphtheria and when the child was convalescent the father contracted a severe tonsillitis and pharyngitis. Bacteriological examination failed to show any diphtheria bacilli and I treated the case locally with Dobell's solution and other antiseptics. On a certain day the patient was scarcely able to articulate and swallowing was extremely difficult and painful and seemingly produced some spasm of the glottis. On examining the throat I found it covered with a heavy coating of very tenacious mucus so that I could tell but little about the mucous membrane and I asked the patient's wife for some peroxide of hydrogen to be used as a spray in a hand atomizer. She brought me a bottle and the room being rather dimly lighted I held it toward the window in order to read the label which long experience as a druggist has taught me to invariably do before using the contents of any bottle. I recognized the amber bottle, dark-blue label, and read "Marchand's Peroxide of Hydrogen." I poured about an ounce of the contents of the bottle into the atomizer and sprayed the patient's throat and mouth. He coughed and choked, but seemingly not much worse than he had done with Dobell's solution, and in a few minutes I was able to repeat the treatment, which I did as forcibly as possible, but while doing it I saw that the mucous membrane of the entire pharynx and mouth had turned white and I recognized the effect of strong carbolic acid. I put the atomizer to my nose and got the familiar odor. I told the patient's wife to bring him a glass of hot water, with which to wash his mouth, and going to the table where the bottle had been placed I found on top of the original label—but not covering the name—a druggist's label which read "Carbolic acid, 95%." I poured the acid back into the bottle, rinsed out the atomizer with hot water, which happened to be handy, filled it with about equal parts of alcohol and water and with this sprayed the patient's throat and mouth and repeated ten or a dozen times in the next fifteen or twenty minutes. During most of this time the patient was choking and strangling, almost suffocated and quite cyanotic. When he was able to breathe with some freedom I stopped the treatment and directed that a mucilage of slippery elm

bark be prepared and that the patient drink a small quantity at frequent intervals. He completely recovered in about a week and when the inflammation caused by the acid had subsided the tonsillitis was also cured.

The accident was caused primarily by the druggist pasting the carbolic acid label over the original label, a thing which druggists seldom do and which should never be done. I remembered afterward that when I poured the acid into the atomizer it appeared to be a rather heavy liquid for peroxide of hydrogen, but the impression was not strong enough to arrest my hand.

Neither the patient nor his wife suspected that an accident had happened and I carried the carbolic acid bottle away in my pocket so that they might not discover it and become alarmed. The druggist and I spent two or three anxious days and the patient some painful and sleepless days and nights. I feared that the great edema which was produced in the pharynx might extend into the larynx and produce suffocation.

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## ANTERO-POSTERIOR CURETTE-FORCEPS FOR REMOVAL OF ADENOIDS.

BY W. A. MARTIN, M.D., SAN FRANCISCO.

Instruments that have been devised for removing post-nasal adenoids may be classed in three varieties, viz., curettes, forceps and guillotines. The first named are of various designs, but the most commonly used are the Gottstein type. Forceps are of two varieties—those that open laterally and those that open antero-posteriorly. The third, or guillotine type, are the adenotome of Schuetz and its modifications.

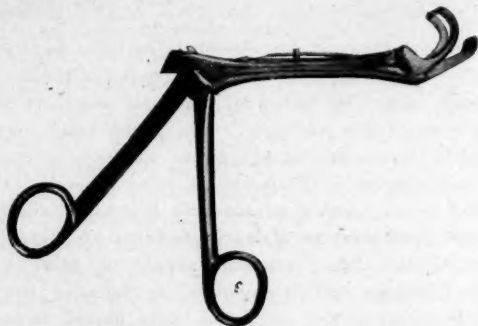
The favorite of these instruments is the Gottstein curette, which, in proper hands, in most cases does all that could be wished. Different operators have their own opinions as to the choice of models. There is a difference of opinion as to whether the instrument should be sharp or dull, many asserting that a dull instrument is less likely to produce hemorrhage. I have seen them with a saw edge, the claim for the latter being that it took hold better and caused less bleeding. I keep my own curettes with a razor edge. (This statement I make to correct an erroneous quotation in the "Year Book" that in operating I used a blunt curette, and thus held it responsible for the severe post-operative hemorrhages which I have reported.) The objection I have found to the curette is that in some instances the growth, or parts of it, are left hanging, and the operation has to be finished with a forceps; often it is impossible to remove all the fragments. I have had five cases of severe hemorrhage following adenoid operations, and in three instances I was not satisfied at the time of operation that the procedure was properly completed. Another objection is that the instrument has to be re-inserted several times if a long sweep is made.

Forceps vary in pattern as much as the curettes. I have not derived entire satisfaction from any of the various forms of forceps on the market. The first objection is that they are difficult to insert behind the palate in small children. The second that, unless guarded with the finger, they are apt to nip the septum or posterior end of the turbinates, and, thirdly, that they do not include the whole tumor. Many models only nip pieces of the growth. The inventors are not always responsible for the instruments in the market (one of the reasons that an inventor should at least be able to control the manufacture of the instrument even if he is not to reap any of the profits of his in-

ventive genius). I have a pair of Gradle's forceps that are only adapted for cutting away the posterior end of the septum, and are so constructed that it would be absolutely impossible to include even a small piece of the adenoid enlargement. Having compared them with the model approved, by Gradle himself, I find that I bought a "gilded brick," although they were purchased from one of the leading instrument-makers of the country.

The antero-posterior forceps with which I am acquainted are few in number. The principal hindrance to this form of instrument has been the inability to separate the jaws of the instrument sufficiently to include the tumor.

I have not tried the guillotine form of instrument, of which the adenotome of Schuetz is the original type. It works on the same principle as the various tonsillotomes. Not having tried it I will not venture to criticise it.



The instrument which I have to offer is a forceps working antero-posteriorly. The anterior cutting blade is modeled on the lines of my favorite Gottstein curette. It cuts against a second blade which, when the instrument is closed, fills in the fenestrum of the cutting blade. It works exactly on the principle of the Gottstein curette with this advantage, owing to the opposing blade, that nothing is left hanging, and has the advantage over the curette that it can be opened and closed in different directions while in situ. It has the advantage over the different lateral forms of forceps that it is easier to insert and that no injury can be done with it to septum or turbinates. I have used it a number of times with perfect satisfaction.

As yet I have only had it made in one size, as I find the curette, after which I had it modeled, will perform its work satisfactorily in the throat of any child from four years to fourteen years of age, the period in which I find I am most often called on to operate.

The instrument has been made most satisfactorily after my designs by E. Meyrowitz, of New York.

135 Geary street, San Francisco.

## SOCIETY PROCEEDINGS.

### AMERICAN LARYNGOLOGICAL ASSOCIATION.

The twenty-second annual congress of the American Laryngological Association was held in Washington, D. C., May 1st, 2d and 3d, 1900.

THE LARYNGOSCOPE is pleased to publish herewith carefully arranged abstracts of the papers presented at this meeting, as prepared by the authors themselves.

#### **President's Address**—SAMUEL JOHNSTON, M.D., Baltimore.

After returning thanks to the members of the association for the honor conferred upon him, the president spoke of the future policy of the association. He believed that new members should be elected by a two-thirds affirmative vote of the entire membership. Old members should be encouraged to continue in active work. Scientific and clinical work should go hand in hand. One should avail himself of all possible advances in diagnostic ability, as, for instance, the determination of leucocytosis as an initial feature of malignant disease. More attention should be paid, in teaching students in rhinology and laryngology, to operative work on the cadaver. Members of the association were looked to as teachers, and consequently great care should be taken in the selection of new candidates. The aim should be not mere numerical strength but skill in attainment. In the programmes of the future it might be well to limit the number of papers, but more attention should be given to discussion. The former should be grouped in two general classes, scientific and clinical. No opinion should go out from the meetings as official unless it was founded on facts. Mild measures, especially as concerned the use of the cautery, saw and trephine, should be strenuously urged. A committee of censors, to be elected annually, should be established, which should pass on all matter to be published in the annual transactions. In conclusion a feeling tribute was paid to the memory of two active fellows who had died during the year—Max Thorner, M. D., of Cincinnati, and Jos. C. Mulhall, M. D., of St. Louis.

**Fractures of the Nose**—T. A. DeBlois, M. D., Boston.

He said that "broken" noses, so-called, were not, as a rule, really fractured. They were rather cases of bony displacement and dislocation. They might be classified according to the degree of injury and also to the relation of the parts involved. There might be a dislocation (not fracture) of the nasal bones, *i. e.*, a solution of bony continuity, or there might be a fracture of the nasal process of the superior maxilla or of the zygoma. Injuries might also result during parturition or from nursing or sleeping, from the constant impact of the nose, delicate at this period, against the mammae or the pillow. Then again there were the cases occurring from falls, blows and collisions. In the "upper-cut" blow of the boxer there was injury to the septum, followed by swelling, possible abscess and detachment from the subjacent parts. The "side" blow gave a double dislocation of the nasal bones, while in the direct "front" blow the internal nasal border was driven downward and outward. Treatment consisted in the reduction of the dislocation, which might require a general anesthetic. These flat noses might be properly manipulated so as to dispense with external apparatus. For an internal splint, a bit of stiff rubber tubing inserted by means of a closed pair of scissors (well greased, so as to facilitate their withdrawal) might be of service. The elastic recoil of the rubber, slowly acting, will often force a dislocated nose into place, though some few days might be required to produce the full effect. Plaster of Paris bandage made an excellent external splint. Illustrative clinical cases were then described.

Dr. DeBlois also exhibited an illustration of an abnormality of the uvula which was double, one mass seeming to come from the anterior and the other from the posterior faucial arch. The former was amputated, leaving the latter appearing as a perfectly normal organ.

**Atrophic Rhinitis**—JAS. E. LOGAN, M. D., Kansas City, Mo.

The special purpose of Dr. Logan's paper upon atrophic rhinitis was to discuss its causation. The causes were summed up under four (4) heads: 1. Hypertrophic rhinitis is the initial lesion producing atrophy by mechanically cutting off nutrition to the outer layers of mucous membrane. 2. Purulent rhinitis in childhood develops a desquamative disease beginning in the superficial layers of the membrane. 3. Atrophy is the result of a specific germ. 4. Pre-existing suppuration of accessory sinuses produces atrophy,

first by inducing desquamation of epithelium, followed by attenuation of other tissues; due to the constant presence of this product of inflammation, the mechanical pressure exerted by evaporation of the watery elements of the discharge, and the formation of crusts upon the surface of the membrane. Numerous other theories have been advanced, but they have been mere modifications of those just enumerated.

Fränkel, Krause, Mackenzie and others believe that hypertrophy is the initial lesion. Bosworth has always been the supporter of the second theory. Loewenberg, Abell and others have maintained the germ theory of its origin. Michel, Grünwald and others have adhered to the theory that the pre-existing suppurative accessory sinus was the probable cause. Which of these theories is correct?

We know that hypertrophic tissue will take on atrophy, but the presence of the former is not necessarily followed by the latter condition as clinical facts have proved. Atrophy may begin by reason of a distinct cause other than the presence of an hypertrophic condition. Atrophy exists most frequently in young people before the age of twenty, and we know that hypertrophy is less excessive at early ages than at later periods in life. Females are the most frequent sufferers, yet we have less hypertrophy in the female than in the male. The germ theory of this disease lacks clinical proof. Inoculation experiments have failed to establish its virtue as a theory.

Dr. Bosworth in 1881 presented a very interesting paper before the International Medical Congress in support of his theory, and many are inclined to accept it as the best explanation of the cause.

I can well understand how this specific inflammation existing in early childhood might eventually produce in neighboring accessory cavities the same type of disease, namely, purulent sinusitis, which by its stubbornness would continue so long as to result in atrophic changes in the nasal cavity. But I do not see my way clear to believe that the nasal cavities alone being involved could establish the proper explanation of the presence of attenuation of this membrane, at the same time the secreting power of this membrane be not diminished. To explain my point, I cannot understand how this membrane, robbed of its epithelium, stripped of its glandular tissue, practically devoid of its blood supply, except through minute channels, could maintain the excessive secretion exhibited in these nostrils. It does seem to me that this secretion must come from the neighboring cavities.

The vital objection to all the theories of which I have any knowledge is a failure to account for the immense secretion neces-

sary for the production of these crusts. It is contrary to all physiological law to find secretion where glands exist, and the microscope fails to reveal glandular cells in a large percentage of atrophied tissue. We also know that the discharges are not from the blood channels, for such exist in but a limited degree.

The experience of various writers referable to the initial site of atrophy differs. Fränkel, Krause, Mackenzie and others believe that the inferior body is the first involved, while many others have found the middle turbinate to be the primary location. Those who believe that the latter is the first affected are inclined towards the accessory sinus theory.

In laying aside the idea of antecedent hypertrophy as a probable factor, it is not unreasonable to believe that the middle body would be more inclined to atrophy, by reason of the fact that its blood supply is more limited and its tissue element less resisting. My experience in practically every case has led me to this belief, as I have before intimated in reference to Case I, as in many others; I have seen the atrophic process established in the middle turbinate, while the inferior upon the same side showed but little evidence of the disease.

**A Case of Ozena of Probable Sphenoidal Origin—J. W. FAR-  
LOW, M. D., Boston, Mass.**

His patient was a girl, aged twenty-one years, with a crusty, odorous discharge from the left naris. There was considerable atrophy of the intra-nasal structures, but the discharge seemed to come definitely from the posterior portion of the naris. The probe seemed to pass into a cavity which was regarded as the sphenoidal sinus. Syringing with peroxide of hydrogen and an alkaline antiseptic, and later curetting, practically relieved all the symptoms.

**Recurring Membranous Fautitis, due to the Bacillus of Fried-  
lander—EMIL MAYER, M.D., New York.**

Friedlander's bacillus, first described in 1882, has been found in local manifestations in stomatitis, ozena, rhino-scleroma, acute suppurative rhinitis, in pus in the antrum of Highmore, in membranous bronchitis, in suppurating dacryocystitis and in ulcers of the cornea. In manifestations by extension it has been found in parotiditis, otitis, broncho-pneumonia, purulent pleurisy, pericarditis, pyelo-nephritis and meningitis. Generally it has been found in pyemia and septicemia.

The first mention of its occurrence in connection with pharyngeal affections was made by Max Stoss in 1895, who described one case.

In 1897 Nicolle and Hebert described five others. Pakes has brief notes of five more cases in 1898, and Billet reports two in 1899. To these recorded cases the writer adds another.

Regarding the frequency of the occurrence of this bacillus Hebert reports that in 1600 examinations of cultures taken from diseased throats, it was found present eight times, while Pakes found it five times in 500. The brief histories of the recorded cases are given and all are in accord that the distress occasioned is very slight, often in no proportion to the extent of the affection. The patients complain of but little or no discomfort; the exudate, which occurs most frequently on the tonsils and on the pharyngeal wall, remains persistent for a long time until it eventually disappears. There is no glandular swelling and no fever. The membrane is pearly white, is very adherent and difficult to remove with forceps, and leaving a bleeding surface when forcibly detached.

The case cited by the author was referred to him by Dr. J. C. McReynolds, of Dallas, Texas. A young lady of nineteen had been under the care of the latter for eighteen months. During all this time a membrane formed either over the entire pharynx and soft palate or over the latter alone. This membrane formed, and subsequently exfoliated on the third day, an interval of entire freedom then existed when it re-formed. After exfoliation the throat appeared normal. If it was prematurely removed a raw surface bleeding on manipulation was present. When it exfoliated large pieces were removed which were pearly white with numerous pinhole perforations. Constitutional manifestations were very slight and mild in comparison with the local involvement.

At no time during the past year and a half had she been free from the membrane more than fourteen days.

The growth of the membrane was carefully watched by the writer and described as being opaque-looking at first, then a very thin adherent membrane appears and is exceedingly tenacious. In a few hours it becomes thick and is pearly white. Twelve hours later exfoliation occurs and large pieces may be removed without pain, the underlying mucous membrane being reddened but not bleeding. The membrane is all thrown off and nothing can be noted of any pre-existing affection from its appearance. Two days later the process was repeated.

These conditions remained for the month that she was under the writer's observation. Her general condition was otherwise good.

Cultures sent to the local health department resulted in the report of "No Klebs-Löffler bacillus."

Examinations of the membrane by George S. Dixon and Eugene Hodenpyl showed it to consist of squamous epithelium arranged in layers of from three to six cells in thickness. On the surface of the membrane, between the cells, as well as within them, are very numerous bacteria in the form principally of short bacilli. There is no fibrin present, neither can leucocytes, blood vessels nor connective tissue be detected.

Bacteriological examination by A. J. Lartigau showed Friedlander's bacilli in pure culture. A guinea pig was inoculated and the bacillus of Friedlander was found in the spleen.

These reports are all given in minute detail and a colored drawing of the diseased state accompanied the paper. The similarity of the cases found in the literature and the one presented by the writer is striking, there being the same rounded character to the edges, the same pearly points strewn through the membrane, the same adhesiveness in early stages and the same bacillus in pure culture. There were some points of difference in them, though. In but one other case was the entire soft palate covered. In none of the recorded cases was there any exfoliation. But in the chronicity the absence of any constitutional signs, the membrane formation and the bacillus always present in pure culture, makes the diagnosis positive.

The question of the possibility of malignering was gone into thoroughly and emphatically negatived.

As far as treatment was concerned, the disease seemed to be limiting itself by very slow process indeed, orthoform in alcohol always rendering her comfortable.

The author concludes thus:

1. That anginas due to the bacillus of Friedlander may exist in a subacute or chronic form.
2. They occasion no distress except perhaps in the beginning of the membranous deposit.
3. They may appear in membranous form, exfoliating and recurring.
4. In the chronic form treatment seems to be of no avail, the bacilli eventually becoming much less active, and the condition cease by limitation.
5. They are probably much more frequent than the few recorded cases seem to indicate.

**On the Employment of the Upright Position in Ether Operations  
Upon the Nose, Throat and other Portions of the Head, with  
Exhibition of a Chair to Facilitate such Operations—THOMAS  
R. FRENCH, M.D., Brooklyn.\***

The writer believes that there has been an almost universal fear amongst surgeons of performing surgical operations upon the nose and throat while the patient is in the upright position, because of the supposed danger of blood flowing into the windpipe. Unless the patient is profoundly anesthetised this does not occur, and even in deep narcosis, during the performance of operations above the larynx, the danger is not great if anything like reasonable care is taken to prevent the blood from flowing over the arytenoid structures, for when sharp hemorrhage occurs the blood can either be caused to drain out from the mouth or nose by tilting the head well forward, or can be caught in sponges passed through the mouth to the posterior pharyngeal wall. It is claimed that disaster is courted when operations are performed in this position, and that if blood flows into the lower air passages while cough reflex is abolished one has only himself to blame if pneumonia or violent bronchitis occurs afterward. Theoretically that seems a plausible statement, but when confronted with the fact that in nearly a thousand operations performed in the upright position by the author and his associate neither such nor any other severe accident has happened, the objection would seem to be deprived of its weight.

A new chair belonging to the class of furniture known as aseptic furniture, the rods of which are made of bicycle tubing, was then described. As the rods supporting the back slide into the back legs of the chair the back can be lengthened to fit any adult, or shortened to fit the back of a child of eighteen months. After being anesthetised in the horizontal position the patient is placed in the chair, which is tilted far backwards, and, while in that position, is strapped to the chair. From that position the head is gradually elevated until the body is in the upright position, by which time the patient is sufficiently anesthetised and the body is in position for operation. It is very important that the elevation of the head should be gradual, otherwise cerebral anemia and loss of cardiac balance may occur. The writer maintains that if care is taken to elevate the head slowly the upright position is in every way as safe for the patient as the prone position.

\* (As Dr. French was unable to attend the meeting he forwarded the above abstract of his paper, together with photographs and colored drawings representing the chair and the manner of placing the patient in, and adjusting and fastening him to it.)

The three most important advantages claimed for the upright position in ether operations were: First, the very considerable reduction in the amount of hemorrhage; second, the reduction of the chances of ear complications by securing complete drainage of blood from the naso-pharynx, the author never having had a case of ear complication follow operation in the upright position, and, third, the ease, thoroughness and accuracy with which operations can be done, in the shortest time, by the retention of the usual relationship between operator and patient.

#### **New Instruments.**

At the close of the session Dr. Boylan exhibited a hypodermic syringe for the application of cocaine to the pharyngeal vault for adenoid operations.

Dr. J. H. Bryan, of Washington, showed an aseptic syringe for nose and ear work and improved drainage tubes for the frontal sinus; Dr. R. P. Lincoln, of New York, a wax model of a recurrent tonsillar tumor, with illustrative plates; Dr. Mayer, a hollow intubation tube introducer for use in laryngeal stenosis, the intubation tube itself being retained by an arm screwed in through the tracheotomy incision.

Dr. T. R. French, of Brooklyn, exhibited photographs of a chair to be used in the employment of the upright position in ether operations on the nose and throat.

#### **DISCUSSION.**

#### **The Early Diagnosis of Laryngeal Cancer and the Treatment—**

*Methods of Diagnosis and General Principles of Treatment—*JOHN N. MACKENZIE, M.D., Baltimore.

Leaving out of consideration the probable existence of a cancer bacillus and the possible future detection of the disease through the blood and secretions, there remain, in the present state of our knowledge, three principal methods of diagnosis in laryngeal cancer. These are, in the order of their practical usefulness and importance:

1. The naked-eye method, or diagnosis by direct inspection supplemented by clinical phenomena.
2. Thyrotomy, and, finally,
3. The microscope. Of the three methods, the second is often included in, and, therefore, ancillary to the first.

It is impossible to exaggerate the importance of naked-eye diagnosis in the detection of laryngeal cancer. Take it all in all,

it is by far the most practical of the three methods. Unfortunately, in most quarters it is relegated to subsidiary place. Even the best of laryngeal surgeons lose no time in procuring portions of a suspected growth for microscopic examination before they have gone thoroughly into the history of the case and carefully endeavored to make the diagnosis with the naked eye alone.

Every resource and refinement of clinical diagnosis should be resorted to before an appeal to the microscope is made.

As the advanced workers in the field of general surgery have, in the differentiation of tumors, come less and less to seek the counsel of the pathologist, except as a court of the very last resort, so should we teach ourselves to depend more and more upon the naked-eye appearance in the diagnosis of tumors in the windpipe. The removal of the "piece for microscopic examination" too often means only the beginning of the end.

The trained surgeon of to-day discriminates with marvelous accuracy (with the naked eye) between the different varieties of benign and malignant growths and we should cultivate and encourage a like amount of skill in the diagnosis of laryngeal tumors.

But, suppose, after weighing carefully all the facts of the case in our possession, a reasonable doubt remains as to the diagnosis, shall the next step be the removal of a portion of the diseased structure for examination?

In the face of all authority to the contrary, I say, emphatically, "No." Before even considering such a proposition (if it be considered at all), the suspected growth should be examined from every point of view, for in this manner alone can we give the naked-eye method its full measure of usefulness. This is best accomplished by the second method—thyrotomy, or, if necessary, even more extensive external division of the tissues of the neck.

Thyrotomy is (always) justifiable, in such cases, when laryngoscopic examination either leaves a reasonable doubt as to its true nature, or manifestly fails to define the exact territory occupied by the disease.

Much can be learned by this method, but it, too, has its limits of usefulness. For, while it alone may establish with certainty the existence of cancer, it often fails to define with absolute accuracy the whole area covered by the morbid process. We can, therefore, never be perfectly sure, especially in cases in which the cancer appears as a diffuse infiltration, that we have the entire disease before our eyes. For, as I have formerly pointed out, as it is often impossible to indicate with exactness the extent of the trouble

laryngoscopically, so after division of the larynx, and even after the removal of the latter organ from the body, it is by no means always possible to map out the entire distribution of the affection.

But suppose, after division of the larynx, there still remains (the faintest) trace of uncertainty as to diagnosis, are we justified under the circumstances and at this stage in removing a portion of the growth for examination? Or to make the question still broader, is partial extirpation of the tumor ever admissible even for the purpose of microscopic diagnosis? Only as a measure of the very last resort. Before resorting to thyrotomy in general, especially if a portion of the growth is to be removed for examination, it should be clearly understood beforehand with the patient, that if the disease should prove to be cancerous, the surgeon shall be at liberty, if in his judgment it seems best, to proceed at once to operation.

The objections which I would urge against removal of tissue for examination (especially when done through the natural passages) are: (1) It subjects the patient at once to the dangers of auto-infection at the point of incision and to metastasis elsewhere; (2) it stimulates the local growth of the cancer, and (3), finally, the method is often inconclusive, misleading and sometimes practically impossible.

The moment the continuity of the growth is broken in that very moment is opened the pathway for self-poisoning, and an unfavorable influence is at once excited on the local process. This is the solemn lesson which I have slowly learned from a sad experience in the past.

Cancer is an infectious process. Whether it be due to a bacillus, which is probable, or whether its activity be due to some vital principle inherent in the cancer cell, incision through the cancerous mass opens up at once a broad avenue for auto-inoculation.

Surgical treatment, to be sufficiently radical, involves the sacrifice of so much tissue that the time must surely come when surgery will be supplanted by simpler and more certain means, and with the discovery of the agent of infection will come its antidote. But to-day the knife is our only means of cure. How can we best employ it?

The general principle of treatment in cancer of the larynx is sufficiently simple. It is, or should be, identical with that which governs us in the treatment of cancer elsewhere in the organism. Total extirpation, *through liberal portions of healthy tissue*, of the growth, together with the neighboring area of possible lymphatic

infection, is the cardinal principle of surgery in the treatment of this disease, for by no other method can it be thoroughly eradicated.

The surgical treatment of laryngeal cancer has resulted in failure in the past because the methods employed have not been sufficiently radical. Thyrotomy with curettage or partial removal, partial and complete removal of the larynx have fallen far short of success simply because they have not completely removed the disease. The records of the future will show that the reason so many cases have terminated in failure and death is because the disease has only been partially removed. As long as we have lymphatics to carry infection and glands to become infected, so long will the patient be subjected to ultimate danger. There is only one rational method, in the majority of cases at least, of dealing with cancer of the larynx. Early total extirpation of the entire organ with its tributary lymphatics and glands, *whether the latter be apparently diseased or not*, is the only possible safeguard against local recurrence or metastasis. By no other method can we give the patient a reasonable assurance of a permanent lease on life.

The surgeon who is abreast with the times does not trifle with cancer in other organs. Why should the larynx be made the exception to the rule? I am told that there are some gynecologists who still curette the uterus for cancer and some surgeons who still remove half the breast in that disease, but, like the Democrats who still vote for Andrew Jackson for president, they are becoming every day more and more hopelessly in the minority. We shall have to learn the same lesson here that we are slowly learning in the case of cancer in other parts of the body. It is the same old fight and the same old obstacles will have to be overcome.

It is often impossible by inspection either with the laryngoscope or after preliminary division of the thyroid, by transmission of light or by the sense of touch, to limit the extent of the disease before operation. As I have demonstrated, even after removal of the larynx, the disease may be apparent in one side of the organ and not in the other and yet the microscope show extensive carcinomatous deposit in the seemingly normal side. Especially is this the case in diffuse infiltration or when the epithelioma originates in the deep-seated tissues and does not approach the surface until a late stage of the disease. The loose tissue beneath the mucous membrane in many places and its wealth in lymphatics often favor from a small focus of infection infiltration of other portions of the larynx and sometimes with great rapidity.

Diffuse infiltration, even though confined to a small area, should always awaken suspicion of the existence of the disease elsewhere in the organ, even though no apparent signs of its presence exist.

It is also possible that in its early history, we may find young cancer cells in the lymphatics, as Halsted has demonstrated in the case of cancer of the breast.

In the presence, therefore, of the fact that it is often impossible to limit the diseased area by inspection and the sense of touch, and in the light of the revelations of the microscope, it becomes a serious question whether we accomplish any lasting good by any operation short of complete excision of the larynx and neighboring lymphatics and glands. Certainly, if the disease approaches the middle line, the imperative necessity of complete removal must be apparent to the most timid and doubting operator.

While total extirpation of the organ with the neighboring area of possible lymphatic infection should be the general rule of practice, are there exceptional cases in which a less radical method of procedure is justifiable?

Early cases in which the growth is very small (as, for example, the small papillomatous and polypoid growths, sometimes found on the cords), distinctly circumscribed, remote from the middle line and not of a specially malignant type, may possibly be removed with safety by extirpation of half the larynx and the lymphatics of the corresponding side. Even here success may be due to the fact that while the growth may be pathologically malignant, it may yet be clinically benign. For example, on other mucous membranes of the body (lips, mouth, bladder, etc.), and on the skin, we find such neoplasms in which the microscope shows an epitheliomatous structure in the main body or superficial portions of the growth, but no malignant changes in base or pedicle. It is quite probable that such a condition exists in the larynx. But even in removal of half the larynx and neck lymphatics we can never be perfectly sure that we have removed the entire disease, whilst it is open to doubt whether the preservation of function which may be secured thereby is sufficient to warrant the risk. Partial preservation of function should never be attempted in the presence of the slightest danger to life.

Operations for laryngeal cancer through the mouth, done almost universally to-day, it seems to me, should no longer come within the range of serious consideration.

Thyrotomy with curettement or removal of all apparent (visible) disease is not up-to-date surgery, is in direct defiance of the rules

that should govern us in the treatment of cancer, and is a reversion to, and a resurrection of, a method of procedure that was discredited and abandoned over half a century ago.

Whatever operation be done, it should be forever borne in mind that we are dealing with cancer—with an infectious process—that no matter how minute the original point of infection may be, the area of possible poisoning is practically boundless, and that, if the slightest doubt exists as to the circumscription of the growth or its character, the complete operation should be done.

No operation for laryngeal cancer is complete without the removal of the neck lymphatics.

It is chiefly because they have not been complete that excision of half the larynx or of the whole organ have so signally failed in the past.

The history of the treatment of laryngeal cancer is the same old wretched story of the treatment of cancer in other organs—the long and melancholy record of dismal failure after failure—the inevitable result of only partially removing the disease. What is the present status of the subject? As far as operative measures are concerned, there seems to be utter paralysis of effort—on every side we are confronted by practical failure. Without stopping to inquire how far apparent success in partial removal of laryngeal cancer may be due to mistakes in diagnosis or to the simple accident of good fortune, it is safe to say that in the present state of our knowledge the outlook is extremely unsatisfactory and somber. In the presence of the great uncertainty that surrounds operations for partial removal, and in the light of our experience in the modern treatment of cancer in other organs of the body, shall we resort to complete extirpation of the larynx with the neighboring area of possible infection, or shall we cling with fatuous persistency to what some one has called, with cruel felicity of expression, the “incomplete operation,” under which term must be included all surgical procedures hitherto resorted to in this disease?

The time will surely come, if it has not already come, when the conscientious surgeon will consider that he has fallen far short of his duty both to his patient and to himself if he does not, in the treatment of cancer of the larynx, remove not only the entire organ, but also the neighboring lymphatic area. Then, and not till then, will we have more favorable statistics and prognosis in cancer of the larynx. Then, and not till then, will the medical historian chronicle a real advance in the management of this terrible disorder.

*Methods of Treatment and the Statistical Results*—D. BRYSON  
DEHAVAN, M.D., New York.

Detailed statistics and data were presented, but are not included herewith. Seven years ago the writer had made an earnest plea for the reporting of all cases, successful ones as well as failures. One hundred and sixty-three cases of eight continental surgeons were compiled. Only those who had had at least ten personal cases were considered. No American was represented. The current statistics were not reliable, because some cases in which more than one operation had been performed appeared as additional cases, besides the line of demarkation between thyrotomy and partial resection had not been sharply drawn. Of the entire number of cases presented and carefully tabulated, only six per cent indicated recoveries, that is three years after operation.

*The Surgical Procedures*—J. SOLIS-COHEN, Philadelphia.

The speaker emphasized the point that permission should be secured from the patient to do whatever seemed necessary before undertaking the operation. If the growth was of such a shape that a section could be removed through the entire thickness, thus allowing the examination of the cut surface, this procedure was permissible. If the growth affected the vocal band, a thyrotomy might be undertaken, and a knife employed to remove the circumscribed diseased tissue. Partial extirpation was not reliable.

In the performance of laryngectomy attention should be called to the points: 1. In order to prevent the entrance of septic matter into the lungs, the operation should be conducted with the head of the patient in a semi-inverted position. 2. Preliminary tracheotomy should be done, otherwise we may be troubled with the descent of the trachea. 3. Efforts should be made to retain the epiglottis if possible. 4. All communication of the mouth with the air passages should be shut off. In attaching the upper part of the trachea to the skin, the tube should be slit longitudinally for a short distance. 5. Avoid all dressings. No packing should be allowed, as this causes a constant desire to swallow. Feeding should be conducted by enema, and no tube used through the mouth. The larynx should be removed from below upward, and after operation the foot of the bed should be elevated. The importance of the combination of laryngological and surgical skill are urged as necessary to secure the most practical results in dealing with these problems and difficult operations.

## GENERAL DISCUSSION.

Dr. C. C. Rice, New York, expressed the conviction that the laryngologist should not turn over these cases to the general surgeon until the diagnosis was positively established. Early diagnosis was difficult. He believed in giving iodides and carefully watching the progress of the case before advising operation.

Dr. Emil Mayer, New York, called attention to the fact that cases often diagnosed as laryngeal cancer showed the origin of the growth to be in the esophagus. He thought that there was a very decided limit to the extent of applicability of endo-laryngeal methods.

Dr. W. K. Simpson, New York, could not advise total extirpation until a microscopic examination of a fragment of the growth had determined the diagnosis. If an early diagnosis could be made and an isolated deposit found, endo-laryngeal methods might be available. In one of his own cases thus treated the man was alive four years after operation. In view of this personal experience, he could not advise total extirpation.

(To be Continued.)

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ERRATA.

**Note.**—In the preparation of the July, 1900, issue of THE LARYNGOSCOPE the revision of one galley of proof was overlooked, and attention is called to the following errors:

- p. 66, line 17, reads *antrum half* instead of *anterior half*.
- p. 66, line 28, reads *height and color* instead of *heightened color*.
- p. 67, line 1, reads *opposing surfaces* instead of *apposing surfaces*.
- p. 67, line 9, reads *followed by* instead of *forward*.
- p. 67, line 16, reads *proceed to* instead of *precede*.
- p. 67, line 35, reads *should be followed* instead of *should not be followed*.
- p. 68, line 15, reads *convexative* instead of *convexity*.
- p. 68, line 15, reads *lighting on* instead of *occurring on*.
- p. 68, line 25, reads *conservatory* instead of *conservative*.
- p. 78, last line, reads *water test* instead of *Weber test*.
- p. 79, line 4, reads *reply when* instead of *reply correctly when*.
- p. 79, line 27, reads *while large* instead of *while not large*.

## NEW YORK ACADEMY OF MEDICINE.

### SECTION ON LARYNGOLOGY AND RHINOLOGY.

Stated Meeting, May 23, 1900.

Wendell C. Phillips, M.D., Chairman.

#### **New Instruments.**

Dr. Joseph H. Abrahams presented, by invitation, some instruments that he had used for the treatment of acute and chronic diseases of the tonsils. The first was a curette, made of malleable material so that the angle of the shaft could be changed at will. The second was a small double-edged knife for cutting the adhesions between the tonsils and the faucial pillars. The third instrument was a lacunar knife having an olive point. The last one exhibited was a bistoury of such a shape that a piece of adhesive plaster or gauze could be readily wound around it to protect the cutting edge when incising abscesses or for similar work.

#### **An Unusual and Intractable Symptom of Antrum Disease.**

Dr. Thomas J. Harris described this symptom and exhibited an illustrative case. He said that pain in disease of the maxillary fossa was a common phenomenon though it varied greatly in degree. It was usually slight and associated with sensitiveness over the diseased antrum. The intractable symptom referred to was a distressing neuralgia. The patient presented was a man, twenty-seven years of age, a brakeman, who had presented himself in June, 1896, with an empyema of the antrum. Considerable pus had been evacuated and careful curettage made, but no dead bone had been discovered. In spite of this the dull neuralgic pain had persisted, and had continued daily for hours at a time. Pain was always elicited when a probe touched the upper and inner wall of the antrum. In June, 1897, the antrum had been reopened and curetted, but the pain had persisted. Salol, phenacetin, Warburg's tincture and various other remedies had been tried without avail. Excision of Meckel's ganglion had been advised, but not agreed to. Then a long course of electrical treatment had been tried, but with no better result. The pain had continued up to the present time without much change. The second case reported was that of a cigarmaker, forty-seven years of age, with nasal obstruc-

tion from an exostosis. After the removal of the latter he had suffered a good deal from neuralgia, and a year later the antrum had been opened and foul pus evacuated. The third case was a phlegmatic German girl, first seen in 1897. Four years previously she had received a blow upon the nose, and for the past year there had been pain in the nose. On opening the antrum and evacuating considerable pus the pain had been relieved for a time, but had returned subsequently. The antrum had been again freely opened and curetted and packed with gauze. The pain had persisted in spite of the various forms of medicinal treatment. There was still a purulent discharge from the ethmoid region notwithstanding the repeated washings. In this case an hysterical element was strongly suspected. Long-continued disease of the antrum seems to be capable of giving rise to a lesion of the nerve itself. These patients were not neurotic in appearance. For those cases in which the pain was severe, excision of Meckel's ganglion should be advised.

Dr. Robert C. Myles said that he had had several cases in which physicians and surgeons had requested him to perform exploratory operations upon the antrum, and the mucous membranes were found intact and healthy. Very extensive operations had been done on the superior maxilla in some of these cases, but without success. On the other hand, there were cases of localized neuritis or periostitis which were relieved very decidedly. He had under his care a case in which the posterior portion of the antrum was greatly thickened, and this gave rise to pressure on the nerve filaments and more or less constant neuralgia. Ethmoiditis and antrum abscess were often associated, and very frequently the small cells above the orbital cavity became blocked and caused neuralgia, lasting for months. On opening these cells, and evacuating the retained secretion, the pain would be relieved. In these cases one was justified in cutting rather freely.

**Report of a Case of Aneurism of the Internal Carotid Artery, with Attacks of Epistaxis and Hemoptysis, Followed by Death and Autopsy.**

Dr. Burton S. Booth, of Troy, made this report. The man had been supposed to be suffering from a chronic quinsy. His first examination had been made January 18, 1900. The patient was a young, anemic man whose breath had a very foul odor. Inquiry showed that a tampon had been lodged posteriorly on the right side and could not be removed. About two years previously his nose had been broken in a bicycle accident. The present trouble had begun

on January 1st, apparently with a cold. Epistaxis soon set in and recurred almost daily. The physical examination showed deviation of the septum to the right, a purulent discharge from the nose and a tampon which had been retained for three days. In the pharynx was a mass extending from the left half of the naso-pharynx to the vault and down as far as could be seen. In the center of this mass was a hemorrhagic spot. Under anesthesia the tampon had been removed from the nostril and the patient had been kept in bed. On January 26th there had been a hemorrhage from the naso-pharynx and a slight one on January 28th. The next day there had been a profuse hemorrhage from the mouth and nose, which had proved fatal in a few seconds. The diagnosis was a dissecting aneurism of the internal carotid artery. The autopsy had been made five hours after death. At a point on the internal carotid, about at the junction of the cervical and petrous portions of the artery, was an aneurismal sac which had ruptured. The case was reported because of the peculiar history and the ease with which it had been mistaken for a peritonsillar abscess.

Dr. T. R. Chambers said that he had had a somewhat similar case, which had been shown to this section.

Dr. Jonathan Wright said that he had seen one or two cases of dilatation of the pharyngeal artery, but nothing so large as the one just reported. His own cases could hardly be considered true aneurisms, but rather "knuckles" in the artery. He recalled a case of that kind which had been incised by some one under the supposition that it was an abscess, and in this way the dilatation of the pharyngeal artery had been converted into a traumatic aneurism.

Dr. W. B. Johnson said that two or three months ago he had been called in to see a case in which a tremendous hemorrhage from the ear had occurred just as a tonsillotomy was about to be performed. On examination there was a very large, tense swelling in the neck and another in the mouth, looking somewhat like that seen in cases of slow-forming pus tonsillar abscess, but believed to be an angioma or angio-sarcoma. No operation was done. There had been subsequently two slight hemorrhages and the subsequent discharge of what appeared to be blood serum from the ear. There had never been any pulsation in this case, and nearly all of the swelling, due to extravasation of blood, had disappeared, though the tumor was still prominent and the peritonsillar swelling persisted. The hemorrhage from the ear was thought to have burrowed up the pharyngeal wall and along the floor of the external auditory canal and to have escaped at the lower edge of the

tympanic ring at the junction of the skin with the tympanum. The hemorrhage was believed to be from the tumor of the neck, although there existed at the time an old perforation of the tympanum.

#### **Nasal Calculus.**

Dr. Edward W. Peet reported this case and presented the specimen. The patient was a woman of seventy-one years, who had sought advice because of a profuse and offensive watery discharge from the nose. She stated that for thirty or forty years she had occasionally blown from the nose small, hard, brownish particles. She could breathe easily through either nostril. Her previous health had been good. Examination showed a calculus lodged about one inch from the right nostril. It was a rough mulberry calculus imbedded in the tissues. It measured  $2\frac{1}{2}$  by 1 by  $\frac{3}{4}$  c.m. The calculus had perforated the septum just anterior to the vomer. The removal left the vomer denuded in one small spot. Careful examination had failed to show any nucleus. The patient asserted that the specimen was exactly like the particles that she had blown from the nose from time to time.

Dr. Phillips said that some years ago he had seen a child of twelve years who was supposed to be suffering from a very foul catarrh. Examination showed a large shoe button that had perforated the septum and had probably been in the nose for two or three years.

Dr. Chambers referred to a case in which a plug had been left in the nose for several months, having been forgotten after checking a nasal hemorrhage. The discharge was very fetid.

Dr. Wright said he had seen one case of calculus in the nose in which a school sponge was the nucleus. He had seen one case, too, of a tooth in the nose.

Dr. Wilson reported a case that had been under the treatment of another physician for two years. On examination he had found the leaf of a tree which had become impacted in the nose.

Dr. Burton S. Booth spoke of a recent case in which he had removed a very large rhinolith which had been in situ for twenty-five years. It was necessary to crush it into several pieces before it could be removed. This rhinolith must have been at least twice the size of the one just exhibited.

Dr. M. D. Lederman said that he had removed from the nose portions of a hairpin, strings, shoe buttons, pebbles and a coffee bean. He advised the use of a general anesthetic in young chil-

dren, for considerable damage may be done by instrumental trauma, in attempting to remove any foreign body from the nose or ear of a frightened and struggling child.

Unilateral nasal suppuration should always call our attention to the possibility of a foreign body in young children. A small alligator forceps, blunt hook or a dull wire aural curette will often prove of valuable assistance in removing such substances.

Dr. J. E. Newcomb said that recently he had detected a foreign body with a probe in the naris of a little girl, but on examining her subsequently under an anesthetic he had been unable to find it again. The discharge continuing, at the end of a few days the child blew out the shoe button herself. One case had occurred at the Roosevelt Hospital in which a croton bug had been removed from the nostril.

Dr. Myles said that one of the most serious cases of this kind that he had treated was one in which a large brass collar button had been retained about seven years. It was preferable to use an anesthetic in these cases, but if the child was cocainized, wrapped in a sheet and properly held as it would be for intubation, the operation could be done without anesthesia.

Dr. Wright said that one of his assistants had made a wire loop with the slight curve on the flat, with which it was exceedingly easy to remove foreign bodies from the nose. He had found it better than any kind of forceps.

Dr. Haskin said that in making a model for an obturator for a cleft palate a dental student had allowed some of the plaster of Paris to escape into the nose, and it had remained there as a foreign body. On examination he had found the mass of plaster packed under the inferior turbinate and had removed it.

Dr. J. E. Newcomb referred to a case which had already been before the section for diagnosis. It was a case of laryngeal infiltration, the nature of which was doubtful. (See LARYNGOSCOPE, March, 1900, page 156.) He began to take the iodide soon after (January 26th), and was seen about a month later when the edematous infiltration which had been present had entirely disappeared. He was seen again on April 12th. The voice was fairly clear, though he said it became hoarse whenever he was tired. Then he was apt to cough a little and his voice would give out. Any taking of fluid was liable to choke him. His general health had been excellent since he had been shown to the section and he had gained in weight. The dosage of the iodide had varied from two to twenty-four grains three times daily, the patient running up and

down the scale so far as amount was concerned. On April 12th only a very slight reddening of the posterior third of both true cords was present, perhaps a little more marked on the left. The movements of the cords were perfectly normal.

Dr. J. E. Newcomb presented a case with paresis of the left vocal cord. The patient, a man of sixty, gave no special history, either personal or family. He had always been well and able to work. Had been a heavy smoker until three months ago. Then gave up using tobacco; drinks beer moderately; positive denial of specific disease and none of its stigmata can be found. About February 1st of the current year he grew hoarse within a period of two days without any apparent cause. He has so continued without odynphagia, spontaneous dyspnea or laryngeal pain. He has dyspnea on slight exertion and an occasional husky cough. He has emaciated some in the last three months.

On examination nothing was found in the chest except chronic emphysema. Urine was normal. No signs indicative of aneurism could be made out. In the larynx it was seen that the left cord stood a little outside the median line, but not in the cadaveric position. No congestion or ulceration could be seen. On attempted phonation the edges of the cord vibrated slowly up and down, but the cord, as a whole, did not move, there being no rotation of the arytenoid. The right cord was normal.

The patient has been for the last three weeks on the iodide, and is now taking sixteen grains after each meal. The effect of the remedy has been good, as the left cord shows some signs of normal excursion and his voice is considerably better than it was.

Dr. Wolff Freudenthal said that he had seen several cases similar to the one first reported. They had received large doses of anti-specific treatment, but had not improved.

Dr. W. Freudenthal reported the following case: A man, while in San Francisco in 1883, suffered severely and had some operation done on his nose. Subsequently he had seen Prof. Von Bergmann and Prof. Krause in Germany. The latter referred him to Dr. Freudenthal in 1891. The man had been seen by a number of prominent laryngologists in this city and all over the country, and had been shown to this section about ten years ago. His asthma remained unrelieved, and the man became a pronounced neurasthenic. He has also fibrinous phthisis. There is a sigmoid deviation of the septum, and this brings up the question of the advisability of operating on this. Dr. Freudenthal is against any operation.

Dr. Myles said he had exhibited this patient to the Academy of Medicine a number of years ago. At that time Dr. Jarvis had excised a portion of the septum with a clamp. It would be noticed that there was a marked collapse of the *alæ nasi* under very slight, unequal atmospheric pressure. The neurasthenic element was very marked.

#### **Perforation and Deviation.**

Dr. J. Wright presented an inoperable case of perforation and deviation of the septum. He also presented a man who had come to his clinic a few months ago suffering from urgent dyspnea, due to subglottic obstruction. He was given a note to one of the hospitals with the request that tracheotomy be done immediately. The man had not delivered the note, and after remaining in the ward for some time he was found almost dead. A hasty operation had been done, and after the diagnosis of syphilitic perichondritis had been made the man had been put on iodide and had improved rapidly. Subsequently an immobility of one vocal cord had been noted. The case had been one of perichondritis and abscess at the beginning. The condition present now had developed subsequent to the operation, and presumably was due to an ankylosis of the crico-arytenoid articulation.

Dr. Myles said there was a decided fixation on the left side, while there was a decided outward movement on the right. The adduction was also defective. The case looked to him more like the results of perichondritis than an affection of central origin.

Dr. W. B. Johnson presented a child whom he had first examined on September 19, 1899. There had been some difficulty with the voice for about four months. At that time a papillomatous condition was present. He had removed many portions with forceps, and had made applications of fused chromic acid. He had tried finally pure formaldehyde solution, but it did not seem to do any more good than alcohol. The papillomatous masses increased. About three weeks ago there had been so much dyspnea that the patient had been intubated, and the tube left in for fourteen days.

Dr. Phillips said that he did not remember having seen a case of papillomatous degeneration in this region that had extended so high up as in this case. It was rare for the arytenoids to be involved as they were here.

Dr. Chambers said that one of his patients, a person of forty-five, had worn a tracheotomy tube for six months. In this case he had used alcohol for a considerable time. Since the tracheotomy all

medication had been stopped, and the papilloma had nearly disappeared.

Dr. Wilson said that he had presented to the Academy of Medicine about two years ago a case in which the intubation tube had fallen down into the tracheal tube, and had become fastened there, necessitating slitting up the rings of the trachea. After the child had been treated in hospital for two years he had determined to let nature take her course. The boy had been kept in the hospital a year longer, and was now practically well, the tube having been removed about one year ago.

Dr. Myles reported a case of very extensive papilloma which had been removed by a general surgeon in a hospital, and the child had died from pneumonia. He had succeeded in removing several subglottic growths with a specially devised forceps, diamond-shaped, after Dundas Grant's pattern. In children these growths exhibited a tendency to go away. He thought the secret of success with the absolute alcohol was to rub it in with a swab in addition to the spraying.

*Case I.*—Dr. Quinlan reported a case of bullet wound of the antrum of Highmore. The man was not aware of being injured except from a profuse epistaxis; the distance of shooting was nearly 100 feet; no evidence of external wound or even irritation of vestibule of nostril was visible, and it was only under the x-ray that the presence of bullet was determined.

*Case II.*—Dr. Quinlan presented patient with syphilitic gumma at base of tongue, that was seen first five years ago and has been under observation during this time. The patient was married two years ago and has a perfectly healthy child. The right half of epiglottis during the past six months has evidenced symptoms of slight breaking down, and swallowing has been at times difficult. General conditions good. Patient is taking iod. kal. gr. xxv t. i. d., with occasional inunctions.

*Case III.*—Dr. Quinlan exhibited a patient on whom the entire anterior wall of frontal bone has been removed for empyema (bilateral) of frontal sinus. There is a history of two former operations done in Europe, but a fistula over left eye showed the existence of dead bone. It is now six weeks since the operation has been performed and the drainage was carried on through nose for some time, but it was thought best to keep a small external wound open in order to watch the conditions better. The case promises well.

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## THE CHICAGO LARYNGOLOGICAL AND CLIMATOLOGICAL SOCIETY.

*Meeting Held July 5, 1900.*

REPORTED BY EDWIN PYNCHON, M.D.

The President, Dr. T. Melville Hardie, in the chair.

The programme for the evening consisted of a symposium on

### **Hypertrophy of the Pharyngeal Tonsil.**

The general discussion was preceded by papers presented by Drs. Norval H. Pierce, Arthur M. Corwin, George Morgenthau and Otto H. Freer.

The opening paper, by Dr. Norval H. Pierce, was a consideration of the

### **Anatomy and Pathology.**

The pharyngeal tonsil is developed concomitant with the faucial tonsils and its function is unknown. The adenoid is a hyperplasia of the normal tissue and has been claimed to be due to either scrofula, tuberculosis or syphilis, though these causes evidently do not explain all cases. Tubercular bacilli have often been found in this growth, and in one case reported tubercular infection of the bones beneath, followed by tubercular meningitis, hence we may justly assume that the relationship is close between tuberculosis and adenoid growth. Sarcoma has also originated in adenoid tissue.

The next paper, by Dr. Arthur M. Corwin, dealt with the

### **Etiology and Prognosis.**

While adenoid enlargement may be met with at any time between infancy and old age it is more common between the ages of three and fifteen. Chappell found this condition present in three per cent of all school children examined in New York City.

Owing to the small size of the post-nasal space in early years the adenoid at that time gives more annoyance than toward the age of puberty, at which time the growth seems to rapidly decrease in size.

While this trouble affects all races and is found in all climates, it is with the Hebrews as a class particularly noticeable. With city-bred children it is more common than with children in the country. While

the principal disturbance due to the presence of adenoids is mechanical, it is well known that luxurious adenoids invite bacterial involvement. Tubercular germs have been found by different investigators, and to as great an extent as in twelve per cent. of the cases examined. The apparent dullness often observed is generally due to impaired hearing.

It is wise to never delay operating when there is the slightest involvement of hearing, and the promise of relief is excellent when the operation is radically done, and the chances of recurrence are slight. The operation, in addition to cleaning the post-nasal space and improving the ear trouble, corrects the tendency to intumescent rhinitis and tends to efface the other usual characteristic phenomena. After the operation the use of the syringe or douche should be avoided and sprays, if used, should be oleaginous instead of aqueous.

Following the above paper Dr. George Morgenthau took up the question of

#### **Symptoms and Diagnosis.**

The common tendency of adenoid obstruction is to result in chronic rhinitis. With the sub-acute inflammation of the adenoid tissue the patient suffers with a persistent nasal stoppage, for the relief of which blowing the nose is inefficient. From these abnormal post-nasal growths is exuded a thickened secretion which often is the cause of laryngismus stridulus. Major has called attention to carbonic acid poisoning from the impairment of respiration. The strongest indication for operation is ear trouble, and should be advised even in case of disease of the external auditory canal. After operation the various symptoms disappear and the impoverished blood improves.

The closing paper was by Dr. Otto H. Freer, being upon the

#### **Treatment.**

Medical treatment has but little effect upon the size of the growth. As the pain of an adenoid operation is probably equal to that of the amputation of the thigh, the use of an anesthetic is imperative, and is even advisable during the diagnostic examination. The younger the child the more likely is reproduction of the growth, though this is slight if the removal is complete, which is always to be desired.

Operation without anesthetic is likely to react disadvantageously on account of the less favorable results. Local anesthesia by the spraying of a weak solution of cocaine is comparatively safe, though

general anesthesia with ether is the most preferable method. The use of the finger nail alone cannot be efficient when the growth is fibrous, though its use is of value to clean up after the use of instruments, particularly in the fossæ of Rosenmüller.

Hemorrhage of importance is unusual. Secondary hemorrhage from sloughing occurred in one case as late as the ninth day. After the use of the Gottstein curette it is probable that more or less recurrence follows in twenty-five per cent. of the cases operated, and thus brings the operation in disrepute with the public. The Loewenberg forceps are to be preferred and when properly used no recurrence will follow. After the use of these forceps a small bone forceps should be introduced through either nostril with the operator's finger in the post-nasal space. No after-treatment is required. The wound will best heal under the protection of the blood clot.

#### DISCUSSION.

Opened by Dr. E. F. Ingals. The relationship between the adenoid growth and tuberculosis is as yet undecided, and particularly as to which is primary and which is secondary when tubercular germs are found in the adenoid tissue. The utility of operating in all cases wherein adenoid growths exist is doubtful. An operation should only be advised when the symptoms call for it or are pronounced.

Internal treatment is to be advised and is sometimes efficient, particularly when hydriodic acid is exhibited. I always give a general anesthetic with trepidation. As an anesthetic in these cases nitrous oxide followed by ether is often employed. The use of oxygen gas after being passed through chloroform has been highly recommended by Kyle. My preference has been for chloroform.

Dr. J. Hollinger: Before operation a preliminary course of internal medication to improve the general condition is to be advised. In one case where recurrence followed twice after operation a cure was finally effected by dietetic regulation in combination with the administration of syr. ferri iodide. It was learned that the patient had been daily indulging in a lunch of cold sausage. After this practice was stopped the adenoid enlargement rapidly and permanently disappeared. In another case it was found that the wearing of a tight collar induced mouth-breathing, there being no nasal obstruction. After the collar was discarded normal breathing followed.

Dr. E. Pynchon: As has been granted by one of the essayists, the etiology of adenoids is more or less clouded in obscurity. They are accompanied by a considerable amount of tenacious secretion,

and to my mind moisture aggravates the condition of the adenoidal mass, favors its growth and extension, and invites bacterial development. This is demonstrated by the fact that a tonsillectomy often tends to diminish the size of the adenoid growth simply by giving better drainage. Furthermore, atrophy often follows an incomplete removal of this growth which is explained in the same way. The apparent shrinkage which occurs at puberty is chiefly due to the increase in size of the post-nasal space, in connection with the general growth, and the succeeding improvement in symptoms is thus due to the increased ventilation and drainage of the parts.

The associate impairment of health, so often in by-gone years named scrofula, is purely secondary and due to an auto-intoxication through impaired respiration and intestinal disturbance. In my opinion the common intestinal troubles of child-life, as well as the frequent disturbance associated with teething, are largely due to lymphoid enlargement in the fauces and post-nasal space.

Dr. Corwin spoke of nasal deformities as being a possible cause of adenoids. In my opinion it is the reverse which is true and that adenoid enlargement in early years is the prime cause of the so frequently met with deformities of the nasal septum which are, in adult years, the most prolific causative factors in the production of so-called nasal catarrh, and in correcting the various deformities in the nose and upper throat I am not ashamed of being a follower of Bosworth, who has at times been decried. I believe, as rhinologists, it should be our duty and aim, in each case treated, to get these parts to conform as nearly as practicable to an ideal standard.

For a mouth-gag I must mention a recent design of Dr. A. H. Ferguson, of this city, which I now use exclusively, having side-tracked all the others, including one of my own design.

In operating under general anesthesia I cannot speak too highly of the use of the Trendelenburg position as recommended by Keen for operations in the upper-air passages. Chloroform has been the anesthetic which I have generally employed when more than a brief anesthesia was desired. The bad results reported from its use are, I believe, largely due to its having been pushed too rapidly, so the vapor accumulates while the patient is holding his breath until, by a sudden gasp, the lung tubes are filled with a too dense vapor which asphyxiates and by absorption in the blood is carried to the heart, so as to produce cardiac paralysis.

In the treatment of adenoids our only positive results are through surgical measures, and internal medication is of use chiefly to suit popular fancy and may be expected to only somewhat improve the general health.

Dr. O. J. Stein: My results with the use of nitrous oxide gas have been very favorable. The chief disadvantages in its use are the cumbersome apparatus and the number of assistants required. Lately I have been using ethyl bromide, and after its use I have observed no vomiting or other unfavorable symptoms. Recently I had a case of hemorrhage which occurred one hour after operation and which was promptly controlled by suprarenal capsule extract. In operating I generally use the curette and in one case found it necessary to use a curette of extra length.

Closing the discussion, Dr. Pierce: If I may be allowed a word more I will mention two points of importance which have not been touched upon:

*First.*—Chiari's observation as to the mass of adenoid tissue lying on the floor of the nose which can be seen anteriorly, and,

*Second.*—Frankel's report of two cases in the *Archiv für Laryngologie* wherein mouth-breathing persisted after operation, owing to the fact that the lips could not be closed on account of a short labial frenum, after a section of which mouth-breathing ceased.

Dr. Freer: I regard both the diagnostic examination and operation as being in many cases difficult to execute and hence would not be disposed to trust either to a general practitioner any more than I would myself undertake a cataract operation. As to the matter of recurrence it may be said in explanation that all lymphoid tissue, when suppurating, sprouts, hence the infection of the wound tends to cause reproduction when the removal is not complete, therefore when all the adenoid tissue has been thoroughly removed no reproduction occurs.

Dr. Freer exhibited a new intra-tracheal spray extension, which was designed to be attached to a Davidson spray bottle and with which a spray could be thrown in the trachea by passing the spray tip between and below the vocal cords. In its use the usual audible sound of the spray is not heard.

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## SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

### *June Meeting.*

The President, Dr. Henry L. Wagner, presided.

#### **Cyst on Dorsum of Tongue.**

Dr. Wagner presented a man, aged seventy-four, who had consulted him, complaining of severe pain, as of a fish-bone, on the left side of the dorsum of the tongue, but nothing was visible to account for it. On the following day there was a little redness. A week later a *bluish cyst* had formed which gradually became opalescent, and now, in three weeks, is two centimeters long by one centimeter wide and still transparent at its center. The President asked the members for a diagnosis, but none was given.

Dr. Redmond Payne presented a case of

#### **Affection of the Cavernous Sinus with Objective Tinnitus.**

Three years ago an insect got into the right ear, and the patient's efforts to remove caused bleeding from the ear with much swelling and pain. Chronic purulent discharge followed, and two months later a clicking sound which was not synchronous with the pulse, movement of the jaw, or any other movement of the adjacent structures. It would last only a minute or so, but occurred several times a day. Two years later the case was seen by Dr. Powell, of Sacramento, who did an ossiculectomy.

A few months later patient was seen by Dr. Powers of this city, who did a simple mastoid operation, which failed to relieve an intense pain suffered by patient and referred to the ear. The seat of this pain was then located by Dr. Powers at a point on the posterior wall of the ext. aud. canal. Dr. Powers then chiselled away this part of the wall without relief. On both occasions, while patient was under the anesthetic, a marked varicose condition of the veins of the right brow and eyelids was noticed. A right facial paralysis also developed about this time.

Some weeks later the patient came under the care of Dr. Payne. He was then in a delirious condition, having been found wandering about town. Temperature 101°; pupils widely dilated; and the right papilla hazy, suggesting the beginning of papillitis. There

was an unhealed wound of the right mastoid, a purulent discharge from the right ear, the tissues of the right eyebrow swollen, the veins varicose, eyelid somewhat swollen, but no exophthalmos, and a right facial paralysis as at present. At this time the clicking sound could be heard fifteen feet from the patient. It was occasionally heard in the left ear also, but only a few inches away.

The conditions continuing, after several weeks Dr. Payne did a complete Stacke operation, curetting out a lot of softened bone from the apex, antrum and attic. The sigmoid sinus was exposed for about one-half inch. There was no pulsation, but as the wall appeared clean and healthy and the jugular vein did not appear corded, the sinus was not laid open. The wound healed very well, and the clicking sound has entirely ceased in the right ear, but the patient still hears it. At present there is a more or less deep-seated pain in the right ear and over the right brow, a low grade of fever most of the time, but always under  $100^{\circ}$ , and sometimes  $99^{\circ}$ . There have been no rigors, and no especial sweating. There is a marked and permanent varicose condition of the veins of the right eyebrow, and the retinal veins are very tortuous. Vision R.  $\frac{20}{400}$ . The veins of the brow and retina being branches of the ophthalmic vein, Dr. Payne suggests a possible partial thrombosis of the right cavernous sinus and an established collateral circulation, and that perhaps this venous current might be indirectly affected through obstruction of the superior petrosal sinus at the point where it empties into the sigmoid sinus. The question he wished to ask is: Is the trouble the patient now suffers directly or indirectly due to tax the trouble in the sigmoid sinus, and is an operation upon the latter indicated?

#### DISCUSSION.

Dr. Eaton thought the appearance of the retinal veins, the varicose veins, together with the history, indicated thrombosis of the right cavernous sinus. He had seen the peculiar condition of the fundus in a case of his own in a patient with septic endocarditis. He recalled the case of thrombosis of the retinal veins published a number of years ago by Knapp, and thought the appearance of the fundus in this case similar to it.

The President said he considered the appearance unlike that of Knapp's case.

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## ABSTRACTS AND BIBLIOGRAPHY.

Arranged and Edited by  
**FAYETTE C. EWING, M.D., St. Louis,**  
with the collaboration of the  
**EDITORIAL STAFF.**

It is our purpose to furnish in this Department a complete and reliable review of the world's current literature of Rhinology, Laryngology and Otology.  
Authors noting an omission of their papers will confer a favor by informing the Editor.

### I. NOSE.

**Myiasis Narium—Maggots in the Nose**—F. G. CORBIN, Mendoza, Argentine Republic—*Montreal Med. Jour.*, February, 1900.

*Case I.*—The patient, foreman of a beet factory, aged forty, complained of intense pain in right ear and parotid region. Examination showed only a slight redness and fullness of right tonsil and soft palate, with no discharge or swelling. The following day, the right side of the face was swollen, and a maggot of a whitish-yellow color, half an inch long, without feet, segmented, with a small dark spot near the posterior extremity, was removed from the nose. This corresponded with the larva of the *hucilia hominivorax*, or blue bottle fly. The day following the patient was unable to breathe through the right side of the nose, and a mass of about fifty maggots, with foul muco-pus, was removed. This relieved the pain. These maggots were alive after immersion in alcohol for one hour. The day after a white exudation appeared on the soft palate, from the edge of the hard to the right of the uvula, which was diphtheritic in appearance. On the fifth day the soft palate sloughed, leaving an aperture corresponding to the extent of the membrane, and through this another lot of larva made their way. These lived in hydrag-bichl., 1 in 1,000 for 60 minutes; in carbolic acid, 1 in 20 for 70 minutes; in alcohol for 95 minutes, and in pure chloroform for 1 minute. The patient improved for twelve days, when an abscess appeared behind the right posterior faucial pillar. The abscess was opened and eighty maggots with pus evacuated. The patient's recovery then proceeded unimpeded.

*Case II* presented a swelling of face and nose, with great pain. Eight maggots came away after washing with chloroform solution.

*Case III.*—Under charge of Dr. de la Sota, had suffered from epistaxis from childhood, with a bad odor frequently. Two nights previous to his visit to the physician, he had slept in the paddoches of the city slaughter houses. He had awakened early with sneezing, and blood clots in the nostrils, and a kind of pricking in the nose and toward the forehead, only relieved by sneezing. The face became swollen on the left side, involving his eyelid. The patient acted as if intoxicated, and there was a bloody foul smelling fluid running from the left nostril. This individual threw off over 250 maggots, all living and was cured by chloroform inhalations. GIBB WISHART.

## II. MOUTH AND NASO-PHARYNX.

### Remarks on Bad Odor From the Mouth—B. FRÄNKEL—*Archiv für Laryngol.*, Band x, Heft 1, 1900.

After remarking on the frequent necessity for deciding as to the source of bad odors, the author mentions Zwaardemaker's instrument for this purpose. He, however, has had no experience with it, and says that his own method is as follows: A piece of stiff paper is held against the patient's upper lip and he is instructed to breathe with closed mouth, first through one nostril and then through the other, while the physician's nose is approximated to that of the patient. If the odor is found not to come from the nose, then both nostrils are closed and the patient is instructed to breathe through the mouth. If the odor comes from the mouth, and it is certain that carious teeth are not the cause, then the author takes a small tampon of cotton on a cotton carrier and touches various portions, smelling of the cotton after each application. In this way it is often possible definitely to locate the offending spot. The tonsils are frequently found to be at fault, where distended lacunæ are filled with cheesy, ill-smelling matter. These lacunæ should be split up. If the tonsil is badly affected it should be removed. The recessus tonsillaris is often the seat of trouble, for pockets are frequently found there filled with a decaying mass of detritus. In this case the plica tonsillaris should be divided so as to destroy the fossa.

In case the odor comes from the esophagus and the deeper air passages, daily washing out as far as possible with some germicidal remedy which also acts as a deodorizer may be practiced.

Care should be taken when a patient comes complaining of a bad breath to ascertain whether there really is an odor to the breath, for many cases of sensory disturbance will be met with. VITUM.

### On a Case of Retropharyngeal Abscess of Auricular Origin—

NOLAND MELZI—*Jour. L., R. et O.*, January, 1900.

This complication occurred in a child two years of age, following a coryza and bronchitis. The patient complained of pain in throat and refused to take food. On examining the pharynx, an enormous retropharyngeal abscess was found. A large quantity of pus was evacuated. No disease of the vertebrae was discovered. A bacteriological examination of the pus of the abscess and of the ear was made, and the same bacteria was seen. In a few days the condition of the throat improved, and at the same time, the ear discharges ceased.

M. D. LEDERMAN.

### Salivary Calculus—FRIEDRICH HANSZEL—*Wiener Klin. Wochenschr.*, February 15, 1900.

The author reports three cases and gives the views of a number of writers as to the etiology of these concretions. No definite conclusion is reached however. VITUM.

**Operation on the Pharyngeal Tonsil; Hæmophilia; Death—**

RICHARD SACHS, Hamburg—*Journ. L., R. et O.*, February, 1900.

The operation was performed under chloroform anesthesia, upon a boy, ten years of age. A modified Gottstein-Beckmann's curette was used, and a piece of the pharyngeal tonsil as large as a walnut was removed. The bleeding ceased in a short time, and the patient left the office with his father. At six o'clock in the evening, the hemorrhage was profuse, and the operator found the child very weak with blood running out of both nostrils. Tampons of iodoform gauze were placed in both nasal chambers and the bleeding seemed to stop. In two hours the child was again visited and blood still flowed. Fresh tampons were introduced, this time saturated with a fresh ferric chloride solution. The hemorrhage was checked temporarily, but in two hours it reappeared, and the patient had fainted several times. Stimulants were given by mouth; anterior and posterior tampons were introduced, and transfusion was practiced, together with a two and a half per cent gelatine added to the usual salt solution, but the bleeding never ceased and the child died.

Six months previous to the operation the boy had a tooth extracted, and four days passed before the bleeding was controlled. The father died at the age of forty-two from a parenchymatous bleeding of the kidney. The author only learned of the hæmophilic history after the operation.

M. D. LEDERMAN.

**Operation on the Pharyngeal Tonsil; Hæmophilia; Death—**

GIBB WISHART—*Canada Lancet*, March, 1900.

In an editorial comment upon a case reported by Sachs (*Journal of Laryngology, Rhinology and Otology*, February, 1900), the writer states that it is questionable whether the surgeon is ever justified in operating upon these growths, except where the patient can at once be put to bed, as cannot be the case in operations in a private office, as in the out-service of a hospital. The operation should not be styled a "minor" one, on account of the liability to accidents, and the serious sequelæ of these.

GIBB WISHART.

**Quinsy in Children—ADOLPH O. PFINGST—*Louisville Monthly Journ. of Med. and Surg.*, March, 1900.**

W. SCHEPPEGRELL.

## III. ACCESSORY SINUSES.

**The Diagnosis of Chronic Empyema of the Maxillary Antrum**

—G. HUNTER MACKENZIE—*The Scottish Med. and Surg. Journal*, April, 1900.

After referring to the usual symptoms and signs associated with chronic suppuration in the maxillary antrum, the author draws attention to the possibility of pus existing in that cavity without anterior purulent nasal discharge. He reports two cases of clinical interest; in one there was posterior nasal discharge only, in the other there was no discharge either from the anterior or posterior nares, but there existed a disagreeable odor perceptible to the patient only and localized by him in the left nostril. Case I was that of a lady in whom pus was detected in the posterior nares and naso-pharynx, but no discharge could be seen on anterior rhinoscopy. Transillumination indicated a distinct darkening of the left cheek as compared with the right, and on exploratory puncture pus was found in the left antrum. Case II was a man who complained of a disagreeable odor of a somewhat persistent nature. There was not nor had been any discharge, either anteriorly or posteriorly, and none was visible on examination. Transillumination showed opacity of the left cheek and pus was found on puncturing.

A. LOGAN TURNER.

**Treatment of Chronic Empyema of the Antrum by Resection of the Upper Part (Pars Supraturbinalis) of its Nasal**

Wall—SIEBENMANN, Basel—*Münchener Med. Wochenschr.*, January 2, 1900.

At a meeting of the Society of South German Laryngologists held at Heidelberg, April 3, 1899, the author read a paper on the above subject. In cases of chronic empyema where it is not advisable to open through the alveolar process on account of sound teeth, the author advocates the following procedure: After proper cocaineization, the little finger is pressed firmly and with a boring motion into the middle meatus. With the tip of the finger and the nail, the wall of the antrum is then crushed in and slit open so that a passage about  $1\frac{1}{2}$  cm. high and 2 cm. long is made into the cavity. The finger can then be passed into the antrum and any thickened pulpy membrane rubbed off. The operator should use the little finger of the right hand to penetrate the right antrum and that of the left hand for the left antrum.

As this procedure usually causes an abundant hemorrhage, it is generally necessary to introduce a tampon, which may be allowed to lie for four days. At the end of that time, splinters of bone, shreds of torn mucous membrane, etc., may readily be removed by the cold snare or with forceps.

In this operation the middle turbinal need not be removed unless it is very much enlarged, or unless its removal is demanded by suppuration of the sinuses lying above. A wound of the lachrymal duct is not to be feared, inasmuch as it is situated in the most anterior portion of the pars supratubinalis.

One great advantage of the large communication thus established between the nasal cavity and the antrum is that the patient can easily learn to use the douche himself and can thus wash out the cavity frequently. The author reports five cases treated in this way. In case the entrance to the nostril is absolutely too small to admit the finger, a sharp spoon may be used.

VITTUM.

#### IV. LARYNX AND TRACHEA.

**Chorea Laryngis**—A. ONODI—*Archiv für Laryngol.*, Band 3, Heft 1, 1900.

This paper is an attempt to suppress the term laryngeal chorea as misleading and unscientific. The author begins with a review of the history of chorea in general and a statement of our understanding of the word to-day.

He then cites from personal letters written him by many of the most distinguished laryngologists in Europe as to what they understand by the term "chorea laryngis."

The consensus of opinion seems to be that Schrötter's use of the term is wrong; that the spasmodic coughs and involuntary sounds emitted by the larynx cannot be considered as indicating chorea of that organ. If the term is to be used at all, it should be restricted to those cases where we can see in the laryngoscope an arrhythmic jerking movement of the muscles which move the vocal cords. These muscles seem to be in a state of unrest and constantly concerned in those twitching movements which we are accustomed to regard as choreic.

Even to these cases the author would apply the term "choreic movements of the vocal cords."

VITTUM.

**Epithelioma of the Epiglottis and Larynx**—H. GRAY CROLY—*Dub. Med. Journ.*, April, 1900.

Mr. Croly showed a male patient forty-two years of age with a malignant growth upon the epiglottis. After tracheotomy there was considerable decrease in the size of the swelling, a similar change having also taken place in the size of the enlarged cervical glands.

A. LOGAN TURNER.

## V. EAR.

**Sarcoma of the Mastoid**—STEPHEN A. LUTZ—*Brooklyn Med. Jour.*, February, 1900.

The patient was a boy nine and one-half years of age, who complained of pain in the left ear, which gave off an offensive discharge of thick pus. Some granulations had been previously removed by the family physician, but there was considerable growth in the canal, obscuring all view of the membrane. The reporter removed some of the tissue and cauterized the base of the growth. In three days the canal was again filled with the tissue. Under cocaine the mass was thoroughly curetted and the site touched with chromic acid. Several spots of bare bone in the middle ear could be felt. This mass of tissue repeatedly returned, so the mastoid was opened, and found to contain a foul-smelling mass of granulations and pus. The facial nerve was damaged, and paralysis appeared, which later improved. The bone cavity was carefully cleansed and good drainage established.

The parotid gland became involved and an incision was made, giving exit to a gelatinous mass. A month after the operation the growth from the mastoid continually increased in size until it assumed a considerable size. The left tonsil was pushed beyond the median line of the throat.

The microscopical examination revealed a small round-celled sarcoma, with a number of giant cells.

M. D. LEDERMAN.

**Endothelial Fibro-Angioma of the External Auricular Meatus**—

URBANO MELZI—*Jour. of Laryng.*, Milan, January, 1900.

On account of the histological structure of the tumor (endo and perivascular endothelium participating in a connective tissue neoplasm) this growth is unique.

The patient was a girl, twenty-two years of age, who appeared with a copious discharge of pus. On examination, the growth (about the size of a pea) was found in the left external auditory canal. It was reddish-brown in color, irregular and knotty in appearance; was movable and sprang from the postero-superior wall of the canal. A copious hemorrhage followed its removal with the snare, but a compact tampon of iodoform gauze checked the bleeding.

A detailed history of the microscopical examination is given, showing its benign nature. The site of the growth was scraped and cauterized. The discharge ceased and the patient was discharged cured.

LEDERMAN.

## VII. NEW INSTRUMENTS AND THERAPY.

**Laryngeal Papilloma Requiring a Special Instrument—**SETH SCOTT BISHOP, Chicago—*Jour. Amer. Med. Assn.*, June 16, 1900.

The patient was fifty years of age. He had had periodical loss of voice previously to, and complete aphonia since, November, 1898. Laryngoscopic examination disclosed the conditions shown in figure 1. The



Fig. 1.

anterior commissure was filled by a pale pink mass resembling pharyngeal adenoids. On each vocal cord was a gray, wart-like papilloma, so situated as to bring the anterior surface of the left against the posterior surface of the right. In attempting to remove the growths it was found that the longest laryngeal forceps obtainable would reach only the upper portion. Then a special forceps was made (figure 2) with



Fig. 2.

blades three-quarters of an inch longer. With the special instrument the remaining masses were readily removed. Beneath the right vocal cord an additional growth was found which it was necessary to remove.

Three months after the operation the patient reported the voice quite normal. Figure 3 shows the growths removed by Mackenzie's

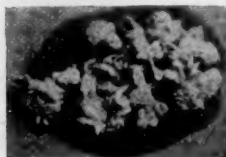


Fig. 3.

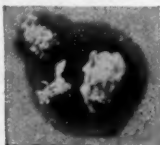


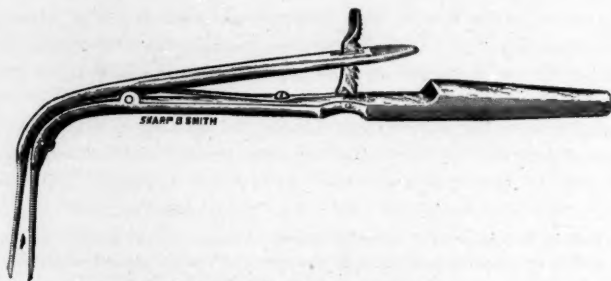
Fig. 4.

instruments. Figure 4 shows the growths that could be removed by the special instrument only.

ANDREWS.

**Intubation of the Larynx**—CHAS. J. WHALEN, Chicago—*Jour. Am. Med. Assn.*, June 2, 1900.

In making a choice between tracheotomy and intubation in private practice the author gives intubation the first place because it is less formidable and can be done by the country practitioner alone. It is unfortunate for patients that physicians rely so much on specialists in the



Whalen's Introducer and Extractor.

treatment of their acute laryngeal cases. The author gives the indications for intubation, and very carefully describes the procedure both of introducing and extracting the tube. After pointing out the defects of the instruments already in use for intubation, a new instrument is presented which certainly overcomes many of these defects.

ANDREWS.

## BOOK REVIEWS.

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**Diseases of the Chest, Throat and Nasal Cavities.** BY E. FLETCHER INGALS, A.M., M.D., Professor of Diseases of the Chest, Throat and Nose, Rush Medical College, etc., etc., Chicago. Fourth revised edition, pp. 780. Cloth, 255 illustrations. Wm. Wood & Co., Publishers, New York. Price, \$4.00.

We think the department in this work devoted to the chest is more satisfactory as a whole than that discussing the nose and throat, and in this connection may point to the fact that the changes in this and the preceding (Third edition) have been mostly in the affections of the thoracic cavity. The book would serve the purpose of the specialist better if more space were devoted to operative procedure. We would also prefer to have had the author more positive and specific in the treatment of certain unsatisfactory diseases for which there is usually recommended a legion of remedies.

With this said, we can heartily commend the work as one that contains the latest accepted knowledge for the busy practitioner. The repeated editions would seem ample evidence that it supplies a want. Though there are many physicians who treat the ear, nose, throat and chest exclusively, this, we believe, is the only work that combines these subjects in discussion.

F. C. E.

**Injuries to the Eye in their Medico-Legal Aspect.** BY S. BAUDRY, M.D., Professor in the Faculty of Medicine, University of Lille, France, etc. Translated from the original by Alfred James Ostheimer, Jr., M.D., of Philadelphia, Pa. Revised and edited by Charles A. Oliver, A.M., M.D. With an adaptation of the Medico-Legal Chapter to the Courts of the United States of America, by Charles Sinkler, Esq., Member of the Philadelphia Bar. 5 $\frac{5}{8}$ x7 $\frac{3}{4}$  inches. Pages, x-161. Extra Cloth, \$1.00 net. The F. A. Davis Co., Publishers, 1914-16 Cherry st., Philadelphia, Pa.

This little volume is of especial interest to those of our readers who are engaged in ophthalmic practice. It contains many original notes and items.

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